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# ASSESSMENT OF QUAHOG STOCKS IN CONTAMINATED WATERS OF SOUTHEASTERN MASSACHUSETTS

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# TABLE OF CONTENTS

Page

INTRODUCTION 1

METHODS AND MATERIALS 2

FINDINGS 3

- New Bedford Harbor-Clarks Cove 3
- Taunton River-Mount Hope Bay 6

DISCUSSION 10

- Previous Resource Information 10
  - New Bedford Harbor-Clarks Cove 10
  - Taunton River-Mount Hope Bay 11
- Sampling 12
- Condition of the Resource - Recruitment 13
- Predation 15
- Water Quality - Net Depurable Standing Crop 15
- Newly Opened Areas 17
- Unsampled Areas 18
- Sustainable Yield 20
- Value of the Resource 21
- Utilization of the Resource 22
- Natural Depuration 22
- Depuration Plants 25

RECOMMENDATIONS 26

SUMMARY 27

ACKNOWLEDGEMENTS 29

LITERATURE CITED 30

APPENDIX 1A

## INTRODUCTION

The Division of Marine Fisheries (DMF) was considering an assessment of the contaminated quahog, Mercenaria mercenaria, resource of southeastern Massachusetts in the fall of 1979. By early 1980, after informal discussions with the Department of Environmental Quality Engineering (DEQE) and with interest in the possibility of a quahog depuration facility being expressed by both the public and private sectors, the idea was presented to Massachusetts Coastal Zone Management (CZM).

As a result, proposals for a joint study to assess the quantity and sanitary quality of the contaminated quahog resource were submitted by DMF and DEQE to CZM for funding under the Coastal Energy Impact Program (CEIP). Initial CZM approval for CEIP funding was granted in late spring of 1980.

The original DMF stock assessment proposal involved development and utilization of a deepwater sampling technique with a shellfish dredge and the use of quahog tongs by experienced commercial diggers in shallow water under supervision. This latter technique has been successfully employed in the past.

Since funding for the diggers never became available as originally agreed, the shallow water portion of the survey was never initiated. This report deals primarily with the deepwater, dredge survey.

Actual survey work was conducted between July 31 and October 24, 1980, and was completed during the period July 13 and July 22, 1981.

## METHODS AND MATERIALS

Quahog populations were surveyed from the Division's research vessel F. C. WILBOUR using a standard, non-hydraulic, commercial quahog "mud dredge" procured from the State of Rhode Island, Department of Environmental Management. The dredge consisted of an opening 21 inches wide with 12 digging teeth and a catch bag of two inch steel rings.

Sampling interval was based upon a 300 $yd^2$ grid system, post stratified by bottom type and depth contour. At least one sampling station was located within each grid having towable bottom. Each station consisted of two, parallel tows, each 100 yards in length. Tow length was measured against range buoys connected by a 300 foot length of line and timed with a stop-watch. In areas of similar substrate, some tows were made on the determined time-distance relationship. All data is presented on the basis of 100 yard tows or a sample area of 525 $ft^2$.

The efficiency of the dredge was determined by SCUBA sampling of the dredge track after several tows in representative substrates and comparing the dredge catch with the number of uncaught quahogs. The number of uncaught quahogs was determined by counting quahogs lying exposed both in the dredge track and adjacent to the track and by obtaining $ft^2$ samples within the track in order to estimate the number of uncaught quahogs left unexposed. In most instances, a minimum of ten $ft^2$ samples was obtained. The dredge efficiency co-efficient of 15% was then applied to the catch data to determine the "actual" or estimated number of quahogs at each station.

All quahogs caught were counted and measured. In the case of large catches, the second tow at certain stations was counted and a 50% sub-sample was measured. This length-frequency data was used to determine the percen-

tage of the catch which fell into certain pre-determined size classes. All measurements were of the longest diameter in millimeters and were made using standard measuring boards.

The standing crop of quahogs, in bushels, by size class, was determined using the area-density method. Grids were assembled into four groups based on a range of quahog density. An average density per $ft^2$ per grid group was determined. The total number of quahogs per acre was calculated and the acreage of each group of grids computed. Using the average percent size of the quahogs in each grid group, the total number of bushels by size class was calculated based on size-volume relationships derived from Belding (1912). The term "bushel" as used in this report is the standard 32-quart measure or about 80 pounds of quahogs by weight.

Position of each tow was determined using radar and/or by compass triangulation.

## FINDINGS

The assessment of the contaminated quahog resource centered on two regions: New Bedford Harbor - Clarks Cove and Taunton River - Mount Hope Bay.

### New Bedford Harbor - Clarks Cove

A total of 186 stations were sampled; 123 in New Bedford Harbor and 63 in Clarks Cove. In addition, 17 stations were sampled separately for DEQE to obtain quahogs and sediments for sanitary and toxic analysis. See Figures 1 and 2; Table 1; and Appendix I, Tables 1, 2, 3; and Appendix II, Tables 1, 2, 3.

Clarks Cove. The data indicates a dense quahog population throughout most of Clarks Cove. Size and density distribution was somewhat erratic from station to station. However, larger chowder size quahogs (> 2 3/4") were

predominant (78%) at the head of the Cove in soft mud (Sta. C 1-3, 15-17) while a more evenly mixed size distribution exists in the mid-region and mouth of the Cove in primarily hard, sandy mud.

Highest densities were found below the 12 foot contour from the head of the Cove to about the 18 foot contour then diminished sharply approaching the closure line. Maximum densities (up to 2.69 $ft^2$), within the area described, were found along the east side of the Cove off Hazelwood Park (Sta. C 4-9) and the sewerage disposal plant on Rodney French Boulevard (Sta. C 11-12, 19-20, 31, 61). Similar high densities exist outside this area off Fort Rodman, adjacent to the New Bedford municipal sewerage outfall, at a depth of 25-29 feet in soft mud (Sta. C 44, 62, 88-89).

Size distribution in the high density areas was as follows: adjacent to Hazelwood Park, 36% cherrystones (range 9-53%) and 56% chowders (range 34-86%); off the sewerage disposal plant, 40% cherrystones (range 37-43%) and 55% chowders (range 52-58%); and in the vicinity of the New Bedford municipal sewerage outfall (Fort Rodman), 43% cherrystones (range 37-47%) and 45% chowders (range 38-52%). Cherrystones fall between 2 1/4" and 2 3/4".

Average adjusted quahog densities ranged from $0.24/ft^2$ - $2.69/ft^2$ over an estimated area of 1,243 acres. Standing crop within the presently closed area was calculated at 228,782 bushels at legal size, of which 74 % were chowders.

New Bedford Harbor. Population density and size distribution were also found to be quite variable in New Bedford Harbor. Average quahog densities adjusted for dredge efficiency ranged from $0.23/ft^2$ - $2.98/ft^2$ in an area of 2,380 acres. Standing crop within this area, all of which is presently closed, was estimated at 249,599 bushels of legal sized quahogs, 67% of which were

> 2 3/4" or chowder sized.

Lowest densities were noted at the mouth of the harbor on either side of the entrance channel from the closure line northerly for a distance of about one mile (Sta. 13-17, 76, 79-84, 99-103, 108-109) and at the head of the harbor on the easterly side in Fairhaven (Sta. 31-34, 36-37, 41-42). At the former group of stations, the substrate was soft mud, except Stations 14-17, 79-81 and 83 where the bottom consisted of hard, sandy mud. The population consisted of 50-100% chowders with a mean of 70%, exclusive of Stations 101-103 and 108-109 which exhibited a mean of 73% cherrystones.

The latter group of stations (head of the harbor) were located on hard, sticky mud bottom with one exception (Sta. 41). Quahogs were predominantly chowders (86%) with a range of 60-100% among this group of stations.

Highest densities were observed in the following areas: between Butler Flats Light and Fort Rodman (Sta. 22-24, 72-73, 91-92, 95-96, 104-105); south of the hurricane barrier (Sta. 5-7, 10, 44-45, 47); and on the east side of the harbor (Sta. 38, 43, 59-61, 63-64, 66-67). In the area between Fort Rodman and Butler Flats Light, Stations 22-24 were located on hard, sandy mud bottom while the remainder were located on soft mud. With the exception of Stations 73 and 91-92 where an average of 53% of the quahogs were chowders, the remaining stations had a range of 53-73% cherrystones for a mean of 61% at these stations. Overall average for this area was 59% cherrystones and 34% chowders.

South of the hurricane barrier, the substrate was found to be soft mud at all but Stations 44-45 and 47 where it was hard, sticky mud. Again, chowder-size quahogs were dominant at 54% (range 47-64%) with cherrystones constituting 32% of the total population (range 27-38%).

In the east central portion of the harbor, substrates varied from hard,

sandy mud to sticky mud. Quahog size was found to be more evenly distributed between chowders at 52% (range 36-67%) and cherrystones at 40% (range 30-49%).

Inner New Bedford Harbor. Very few quahogs were found at sample sites inside the hurricane barrier, except at Stations I 8-10. At these three stations, the average adjusted density was found to be 1.15/ft$^2$, consisting of 28% cherrystones (range 22-33%) and 54% chowders (range 27-61%). Juvenile quahogs (1-2") comprised 29% of the catch at Station 10. Soft mud substrate was found at all stations as well as debris and trash of all types which made towing a dredge difficult.

Average adjusted density for this area ranged from 0.24/ft$^2$ - 1.15/ft$^2$ over an estimated 111 acres. Standing crop within this area was calculated at 4,831 bushels at legal size, of which 65% were chowders.

## Taunton River - Mt. Hope Bay

In this region, a total of 126 stations were sampled: 64 in Mt. Hope Bay and 62 in the Taunton River. Additionally, 13 stations were sampled for DEQE. See Figures 3 and 4; Table 2; and Appendix I, Tables 4, 5; and, Appendix II, Tables 4, 5.

Mt. Hope Bay. Quahog density was uniformally low throughout much of the Bay at an average of 0.25/ft$^2$ adjusted for dredge efficiency in an area of 1,506 acres. Adjusted density ranged from 0.05/ft$^2$ at Station F 25 to 0.58/ft$^2$ at Station F 61. Chowder size quahogs were predominant, comprising 86% of the population, with cherrystones making up only 9%. Soft mud substrate was prevalent throughout most of the Bay except for hard, sandy mud at Stations F 33, 41, and 47 in the area west of the shipping channel.

Higher quahog densities, averaging 0.67/ft$^2$ were noted in three areas totaling 427 acres. These were the Lee River; the east side of the shipping

channel from the Massachusetts-Rhode Island Line, northerly to the mouth of the Taunton River; and an area located south of Gardner Neck, Swansea (Table 3).

The Lee River (Sta. F 49-54) exhibited quahog densities ranging from $0.5/ft^2$ at Station F 49 to $0.95/ft^2$ at Station F 53 with an average density of $0.68/ft^2$ over an area of 130 acres. Substrate throughout the river consisted mainly of soft mud. More cherrystones (22%) were found here than at any other location in Mt. Hope Bay. Chowders comprised 76% of the population.

On the east side of the shipping channel (Sta. F 59-63), a hard, sandy mud substrate was found along with the highest quahog densities in the bay at an average of $0.73/ft^2$. This area consisted of 204 acres in which quahog densities varied from $0.32/ft^2$ at Station F 60 to $1.15/ft^2$ at Station F 63. The composition of the population was 88% chowders and 8% cherrystones.

The third area of higher quahog concentration (Sta. F 4A, 4B, 5, 33) is located in the bay south of Gardner Neck and had an average density of $0.67/ft^2$. Densities fluctuated from $0.44/ft^2$ at Station F 4B through $0.94/ft^2$ at Station F 5. With the exception of hard, sandy mud at Station F 33 the remaining stations were located on soft mud. The population was 88% chowders and 10% cherrystones, located in an area of 93 acres.

The total productive area in Mt. Hope Bay, towable with a dredge, amounted to 1,933 acres. The standing crop was estimated at 96,381 bushels, of which 93% were chowders.

The survey uncovered some noteworthy facts concerning the quahog population and Mt. Hope Bay. At 21 or 32% of the stations, 45-100% of the large or chowder size quahogs were found to be blunts. See Appendix II, Table 4. This condition represents retrogressive growth typical of old age (Belding, 1912) which causes thickening at the shell edges. Blunts were found at all stations

in two of the higher density areas, Lee River (Sta. F 49-54) and the east side of the shipping channel (Sta. F 59-63). The remaining 11 stations containing blunts were primarily located along the north shore of the bay extending from Gardners Neck into the mouth of the Taunton River.

Channeled whelks, Busycon canaliculatum, were taken in the dredge at 28 stations (43%) at a rate of 1-4 per station. Other shellfish predators such as knobbed whelks, Busycon caricum, (Sta. F 14, 45-46); starfish, Asterias sp. (Sta. F 47); and moon snails, Polinices duplicata (Sta. F 18) were noted. A number of other invertebrate species were found in abundance. Most notable were the mantis shrimp, Squilla empusa; horseshoe crab, Limulus polyphemus; and common spider crab, Libinia emarginata.

Quantities of relic soft-clam shells, Mya arenaria, were found at 20 stations (31%) indicating the presence of significant subtidal clam populations in the distant past. Quahog shell was also found at 11 stations (F 14-17, 27-39) in significant amounts. This shell was old and variable in size. No cause of death was apparent.

Taunton River. Total productive quahog area on towable bottom in the river amounts to about 1,078 acres. The standing crop was estimated at 41,591 bushels, 68% of which were chowders (28,504 bu) and 29% of which were cherrystones (11,959 bu).

Quahog density was very low throughout most of the river (892 acres) at an adjusted average of $0.19/ft^2$. Discounting 6 stations (TR 13, 36, 52-55) in the dredged river channel, the adjusted average rises to $0.21/ft^2$ ranging from $0.57/ft^2$ at Station TR 4 to $0.076/ft^2$ at Station TR 40. In actual numbers, the population was composed of 57% chowders and 34% cherrystones. Bottom type was variable but consisted mostly of soft muds except for hard, sandy mud along

the edges of bars and sections of the river banks.

Four high density beds were identified which accounted for the remaining 186 acres of productive bottom. Bed #1 located in the cove south of Pierce's Beach in Somerset (Sta. TR 43-44) consisted of 37 acres varying from soft to hard, sandy mud with a mean density of $0.86/ft^2$. Cherrystones made up 58% of the population while 28% were chowders. Bed #2 located along the east bank of the river bordering the Fall River Country Club (Sta. TR 20, 22, 27, 37) was approximately 74 acres with substrate varying between soft mud and hard, sandy mud. Mean quahog density was $1.13/ft^2$ with 50% chowders and 42% cherrystones.

The third bed (Sta. TR 51) was also situated on the east side of the river, in Fall River, in the cove just south of the Shell Oil Tank Farm. A density of $1.4/ft^2$ in 20 acres of hard, sandy mud and stone bottom was found. Size distribution was 48% cherrystones and 45% chowders.

A fourth bed (Sta. TR 47-49) was distinguished in Breeds Cove, south of Montaup Electric in Somerset. It consisted of 55 acres of soft mud with a mean quahog density of $0.85/ft^2$. Chowders composed 50% of the population and cherrystones made up 39%. See Table 3.

Some notable observations were also made in the Taunton River. Quantities of relic oyster and soft-clam shell were taken at 16 (26%) and 13 (21%) stations respectively, indicating the location of former oyster and clam beds. Channel whelks and horseshoe crabs were each found at 10 stations (16%) while starfish were found at six stations (10%).

The dredged shipping channel from the Shell Oil Tank Farm to the Massachusetts-Rhode Island Line (Sta. TR 53-60) was almost completely devoid of shellfish with an adjusted average of 2 quahogs per station or a density of $0.0003/ft^2$. The bottom, primarily, consisted of a soft, anerobic mud over clay. At Stations TR 13, 38, 52 where maintenance dredging occurs less frequently, there was an average of 22 quahogs per station or $0.041/ft^2$.

## DISCUSSION

### Previous Resource Information

This survey represents the most extensive attempt to date, to assess deepwater quahog stocks in both regions. Previous information concerning deepwater quahog stocks is scarce and deals only with portions of the total area. In addition, this earlier information is generally more qualitative than quantitative.

Even where some quantitative information is available, it is difficult to compare because of differences such as: type of dredge utilized; unknown dimensions of dredge openings; unknown or different length of tows; differences in dredge efficiency; and results given in bushels per tow which is often subjective and variable. However, an attempt has been made to discuss some of this information, at least for historical reasons.

New Bedford Harbor - Clarks Cove. In 1909, Belding rated quahog producing areas and listed outer New Bedford Harbor as "fair" and the inner harbor (Acushnet River), Priests Cove and Clarks Cove as "good". Later, in 1912, he states that good beds of quahogs, particularly littlenecks exist in Acushnet River, Clarks Cove and in Priests Cove as far as Sconticut Neck. He also mentions that the west shore of Sconticut Neck (east side of the outer harbor) yields only a small amount.

The only available quantitative resource information is from an abbreviated survey conducted by DMF personnel in 1966 (Carr) on the dragger ST. GEORGE. Five minute tows were made west of the shipping channel and south of the hurricane barrier in New Bedford Harbor and at the head of Clarks Cove. These areas are analogous to stations 3-10 and 47 and stations C 1-3 and 15-17 respectively. In New Bedford Harbor, catches of 3/4 - 3 bushels per five

minute tow were obtained with a size ratio of 65% large (>3 inches) and 35% small as compared to a current ratio of 59% large (chowders) and 41% small. Clarks Cove produced a catch of 1 1/2 bushels per tow in 1966 of which 78% were large and 22% small. A valid comparison of quantities cannot be made owing to insufficient information concerning the earlier survey technique.

Taunton River - Mt. Hope Bay. In the early 1900's (1905-1908) most of the Taunton River and about one-third of Mt. Hope Bay were held as oyster grants (Belding 1909). The only mention of a quahog resource in 1909 referred to the termination of commercial quahoging in Swansea, three years earlier. However, it is known that the quahog resource was important because of legislative acts in 1874, 1900, and 1901 (Belding 1912) dealing with quahog conservation and regulation in the region.

Recent information concerning the quahog resource in this region is found in a 1970 study by Curley et al. (1974) in which a standing crop of 103,737 bushels was estimated for the entire Lee River. No standing crop estimate was made for Mt. Hope Bay or the Taunton River because of insufficient data due to gear limitations. However, a total of 330 acres in water 12-19 feet deep was sampled by Carr (1971) using a Fall River dredge (Rocking Chair Dredge) with a 14 inch opening in conjunction with the study by Curley. This effort yielded catches ranging from 0-90 quahogs per five minute tow of which 90% were legal size. See Figure 5.

In a survey conducted by Hickey (1975) using a Fall River dredge in the upper river between Montaup Electric and the Fall River Country Club, tows adjusted to one minute produced catches ranging from 2-190 quahogs. These were almost entirely littlenecks and cherrystones. The 1975 survey stations were closely analogous to stations used in the current survey. Since the earlier

survey, a sharp decline in stocks, between 50-80%, was noted in the vicinity of stations TR 21, 23, 28, and 32-34 while increases of not more than 20% were observed at stations TR 27, 37, and 41. The decline in quahog stocks in this region is probably due, in part, to the fact that several transplants occurred from this area between 1976 and 1981.

Both regions have supported a quahog fishery before and since 1900. Even after the earliest public health closures of Clarks Cove, the Acushnet River and the Taunton River in 1905, fisheries for bait and transplants, under special permits were conducted in the contaminated areas. More recently, a large scale transplanting program for natural depuration and propagation took place under DMF auspices from the late 1940's through 1966. During this period, up to 25,000 bushels per year were removed from both regions for replanting in clean waters. Since 1966, regular relaying has continued on a smaller scale (8000 bushels/yr) and primarily from the Taunton River.

### Sampling

Population density was found to be quite variable from station to station as was expected and often between tows at the same station. However, at stations where parallel tows were immediately adjacent, the catch per tow was similar. This observation provides a feeling of reliability in the gear.

Conversely, at those stations where, because of tide, wind or bottom conditions, the tows were separated by more than 50-60 yards, there was often a large disparity in the catch. Understanding the known contagious or spotty distribution of quahogs (Saila et al. 1965; 1966), rather than a uniform or homogeneous distribution, this is not surprising and is analogous to the differences between stations.

It is because of this fact that the data was arranged into four grid

groups of similar density ranges for estimation of the standing crop instead of generating a single average density per $ft^2$ for an entire area. With large differences in population density over a wide area as was observed in this survey, averaging the data would produce an altogether false population estimate.

During the survey, care was taken to avoid completely washing the dredge during haul back in order to prevent loss of seed and juvenile quahogs, since the dredge bag was constructed of 2 inch rings. At most stations juveniles (1-2") were taken while seed (< 1") was observed at only one station in the Taunton River and in Inner New Bedford Harbor and at 14 stations in New Bedford Harbor. Loss of smaller quahogs is unavoidable since the gear is size selective and seed was observed on some occasions falling through the rings.

The determination of the dredge efficiency as described in the methods section was based on 13 trials. Dredge efficiency is sensitive to factors such as: towing speed, ratio of warp-length to water depth, bottom type, and density of shellfish. Generally, at higher towing speed, on harder bottoms, on substrates with a heavy cover and in very dense aggregations of shellfish, the dredge was found to be least efficient. An average efficiency of 15% was determined from the seven most representative trials. A more detailed discussion of dredge efficiency will be the subject of another report.

It is interesting to note that breakage of quahogs in the catch was minimal. On the other hand, an average breakage of 8% was observed among uncaught quahogs lying exposed in the dredge track in densely populated areas on hard bottom. Conversely, no breakage was noted among uncaught quahogs on soft bottom.

### Condition of the Resource - Recruitment

Estimates of recruitment are difficult under the best circumstances. The reliability of such an appraisal based upon the number of juveniles and seed

taken during the survey is questionable, considering the selectivity of the gear as mentioned earlier. The following is the average percent of juvenile quahogs taken in each major area.

| | |
|---|---|
| New Bedford Harbor | 4.5% |
| Inner New Bedford Harbor | 5.7% |
| Clarks Cove | 2.3% |
| Taunton River | 3.4% |
| Mt. Hope Bay | 1.8% |

A cursory examination of this data might indicate a low-level of recruitment; however, this may not be the case because of sampling bias. Also, in most populations, highly successful sets occur only occasionally and are often capable of sustaining a fishery for a number of years. Low level recruitment is generally attributed to adverse environmental conditions or reduced brood stocks. The latter does not appear to be a limiting factor in either region. In fact, despite pollution, minimal management and periodic heavy utilization, legal and otherwise, the resource has sustained itself over the years.

Portions of the stocks in both regions exhibit characteristics of older populations with a higher percentage of larger quahogs. Most notable are the head of Clarks Cove, the mouth of New Bedford Harbor, the head of the harbor on the easterly side and Mt. Hope Bay. The conditions in Mt. Hope Bay not only denote an old population but also poor long-term recruitment. Population density throughout much of the bay was very low (35.59 bu/acre), quahogs were large (86% chowders) and 45-100% were blunts at 32% of the sample sites.

A more balanced size distribution exists in the Taunton River, including the four beds previously discussed (46% chowders) and in New Bedford Harbor

(50% chowders) than in other areas. Considering average densities, the number of captured juveniles and size distribution of the stocks, it appears that long-term recruitment has been steady in all but Mt. Hope Bay.

## Predation

Predation did not appear to be a problem in either New Bedford Harbor or Clarks Cove since few of the usual known quahog predators were observed except starfish at 2 stations (80-81) in New Bedford Harbor. In the Taunton River and Mt. Hope Bay the most common predator found was the channeled whelk which was taken at 30% or 38 of the 126 stations. Other predators in small numbers were observed as noted in the findings with only starfish in appreciable numbers at seven stations. Starfish were listed as the most notable invertebrate by Curley et al. (1974) and as being abundant at most sampling stations in the Taunton River and Mt. Hope Bay. No evidence was visible in the catch in either region indicating that predation was a serious problem.

## Water Quality - Net Depurable Standing Crop

As a result of sampling and analysis performed by DEQE (1982) it was tentatively determined that all of the productive quahog area in the Taunton River - Mt. Hope Bay region was bacteriologically acceptable for a "Restricted" classification except for two areas. These areas, DEQE station TRW-9, and stations TRW 15-16, MHB 17, 20-21, correspond with Taunton River bed #4 (Sta. 47-49) and Mt. Hope Bay bed #3 (Sta. F 59-63), respectively. At only one DEQE station (MHBQ 4) did the mercury level in quahogs exceed the U. S. Food and Drug standard of 1 ppm with a result of 1.67 ppm. This station closely corresponded with DMF station F 36.

The net effect of the bacteriological results would be to reduce the standing crop in the Taunton River - Mt. Hope Bay region by an estimated

26,871 bushels (19%) leaving a depurable standing crop of 111,101 bushels. See Table 4.

Water sample results in the New Bedford Harbor - Clarks Cove region indicated only two locations where total coliform median values were in excess of allowable limits for depuration. These were DEQE station CCW-1 near the combined sewer overflow at the head of Clarks Cove and DEQE station NBOW-13 near the outfall of the New Bedford Sewerage Treatment Plant. All stations tested were within allowable limits for mercury and PCB.

No estimate of the size of "Prohibited" area was made by DEQE. However, it is projected that DMF Stations C 1-2 and C 15-17 in Clarks Cove would be effected by excessive median total coliform values at DEQE Station CCW-1. Likewise, DMF Stations 85-90, 96, 100-104 and 109-110 in New Bedford Harbor would no doubt be adversely effected as a result of high counts at DEQE Station NBOW-13. In addition, it is certain that productive quahog area inside the hurricane barrier would be classified as "Prohibited".

Assuming such adverse effects, the standing crop in Clarks Cove would be reduced by 16,722 bushels (7%) and in New Bedford Harbor by 42,443 bushels (17%) leaving a depurable standing crop of 419,216 bushels. These figures are based upon relatively conservative "Prohibited" classifications of 107 acres in Clarks Cove and 371 acres off the New Bedford Sewerage Treatment Plant and thus could be higher.

The total depurable standing crop for both regions amounts to 530,317 bushels in the areas surveyed of which 74% are chowders. Table 4 lists the net depurable standing crop by area and size category.

## Newly Opened Areas

As a result of the sanitary survey conducted by DEQE, the old closure line of February, 1971, was adjusted and approximately 453 acres of Clarks Cove, lying in the Town of Dartmouth and about 451 acres of New Bedford Harbor, in the Town of Fairhaven, were re-opened to direct shellfish harvest on May 1, 1981.

During the DMF quahog survey, previous to the reclassification, it was estimated that 49,168 bushels (74% chowders, 23% cherrystones, 2% littlenecks) existed on 316 acres in deepwater within the newly opened area in Clarks Cove.

The Town of Dartmouth recorded a catch of 55,500 bushels (averaging 90 lbs) between May 1, 1981 and the end of March, 1983. Initially, 152 bull-rakers were harvesting 3 bushels each per day. This number has now dwindled to 20 rakers averaging 1 3/4 bushels per day. In addition, three dredge boats have been harvesting from this area since the opening.

The DMF estimate of 49,168 bushels at 80 pounds in 316 acres translates into 155.59 bu/acre. The Dartmouth catch statistics, 55,500 bushels at 90 pounds in 453 acres converts to a catch of 62,437 bushels at 80 pounds or a standing crop of 137.83 bu/acre. The DMF estimate is 17.76 bu/acre or 11.4% higher than what has been harvested between May, 1981 and March, 1983. Thus, it could be expected that about 8000 bushels may remain in the 453 acres of open area in Clarks Cove.

No estimate of standing crop was made for the Fairhaven open area since the bottom was found to be very hard and rocky, causing the dredge to hang-up and repeatedly break the towline. Therefore, this locale was considered generally untowable with non-hydraulic gear. However, from information provided by the Fairhaven Shellfish Constable, it is estimated that approximately

17,000 bushels at 80 pounds have been harvested during the same period primarily by three boats using hydraulic dredges. Fairhaven allows dredging in this area between September and April with a daily limit of 15 bushels at 100 pounds. The reported size composition is 30% littlenecks, 52% cherrystones and 18% chowders.

Unsampled Areas

Unsampled in this survey was the region lying principally between Mean Low Water and the twleve foot contour. In New Bedford Harbor, this amounted to a substantial area of about 1,682 acres. This included the following:

1) The area immediately south of the hurricane barrier and along the east shore of Clarks Point (292 acres) was untowable because of discarded steel cables, moorings and other obstructions. It is felt that a fairly substantial resource may exist here. Observations by DMF divers indicates densities of 0-2/ft$^2$, mostly neck and cherry, in soft mud along the west end of the hurricane barrier and 0-3/ft$^2$, mostly chowders, in hard sand along the east end of the barrier.

2) Fort Flat, and Big and Little Egg Islands south of Fort Phoenix amounts to 862 acres. Fort Flat contains over 90% chowders inshore grading into a mix of about 40% littleneck and 30% cherrystones in 8-12 feet of water. During 1982, 2,250 "bushels" at 100 pounds each were removed from this general area and transplanted to Dennis, Falmouth, and Fairhaven. Around Little Egg Island, mostly large quahogs are found on hard bottom.

3) Priest's Cove consists of 366 acres sparsely populated with chowder size quahogs along the east shore and south central section but is believed to be heavily populated on the shallow flat at the head of the cove near the creeks and along the western shore with

40-50% littlenecks and cherrystones.

4) The west shore of Sconticut Neck from Priests Cove to Silver Shell Beach amounting to 162 acres is sparsely populated with large chowders on hard bottom.

Unsampled quahog producing area in contaminated waters of the Taunton River-Mt. Hope Bay region amounted to 646 acres. This included the following:

1) The upper Cole River between Rtes. 6 and 195 (16 acres) contains low densities of mostly large quahogs on soft bottom. A standing crop of 89 bushels was estimated by Curley (1974) for this area. Also, in the Cole River, at Ocean Grove Beach (32 acres; hard, sandy mud) in primarily the intertidal zone was not sampled. Densities here are also believed to be low, at less than 300 bushels.

2) The upper Lee River from the narrows just north of New England Power Company (old railroad bridge) to Rte. 6 which comprises 118 acres was untowable because of obstructions and shallow water. This area is believed to contain a large number of quahogs, especially between the narrows and Rte. 195 on the west side of the river. Average quahog densities as high as 9.50/ft$^2$ were reported by Curley (1974). Much of this has now reached chowder size.

3) At the mouth of the Taunton River from New England Power Company's private channel north to the Brightman St. Bridge at Rte. 6 (Borden Flats), sampling was attempted without success. In this area of approximately 480 acres, the bottom was mostly hard and very uneven causing repeated breaking of the towline. Rocks, cables and other obstructions were also present. The shallow inshore portion of this area has been highly productive in recent years as a transplant harvest site. A total

of 4000 bushels was removed by hand diggers between 1975-1980. The deeper portions (14-25') seem to contain low densities based upon Carr's 1971 survey (0-11 quahogs/5 min. tow).

A total of approximately 2,328 acres was unsampled between the two regions because it was untowable with the gear employed, contained obstructions or was too shallow for the dredge boat. About 1,339 acres is considered to be moderately to highly productive, 90 acres in the Lee River, 95 acres in the Taunton River, and 1,154 acres in New Bedford Harbor.

### Sustainable Yield

Since actual levels of recruitment were difficult to assess and are impossible to predict, a conservative approach has been taken concerning the sustained annual yield. Assuming continued steady, long-term production at the current level, a sustained annual yield of 20 percent of the standing crop would be reasonable (Holmsen 1966) based upon a median estimate from fishery biologists for polluted waters of Narragansett Bay where quahogs averaged 106.66 bu/acre. This is close to the overall average for New Bedford Harbor and Clarks Cove at 144.43 bu/acre and more than double that of the Taunton River and Mt. Hope Bay.

Twenty percent of the combined total depurable standing crop from both regions is 106,063 bushels or nearly as much as the estimated number of littlenecks and cherrystones (120,009 bu.) in the New Bedford region, not allowing for additional quahogs of these sizes in the unsampled areas. Realizing that it is this size group that most likely would be sought for depuration because of it's high value, an annual yield of 20% of the total standing crop would nearly deplete this size group in one year. On the other hand, if left too long, these quahogs would grow to chowder size and become less desirable because of their loss in value.

The ideal in a well managed commercial quahog fishery is to maintain sufficient parent stock, and hopefully a high level of recruitment; and at the same time, harvest the bulk of the resource before it reaches chowder size. In the present situation, 74% of the harvestable resource is already chowder size. Depletion of spawning stocks does not then appear to be an immediate problem.

If only littlenecks and cherrystones are considered, and the yield is increased to 50% to avoid loss of value through growth, the New Bedford region could support a depuration plant with a capacity of 60,000 bushels annually for a minimum of two years. After two years, the level of production might vary depending upon the success of spawning, setting and survival to legal size.

Breaking up and softening of the bottom as a result of harvesting would facilitate setting by quahog larvae, previously unable to penetrate more compact bottom. Theoretically, removal of the dense population of chowder quahogs would also provide more space for larvae to set and grow. Thus, it is anticipated that fishing activity and elimination of a portion of the stocks would enhance recruitment.

## Value of the Resource

The value of quahogs fluctuates throughout the year according to season, demand and availability. The price paid to the fishermen (ex-vessel) during 1982-83 has ranged as follows:*

| | | |
|---|---|---|
| Littlenecks | $0.80 - 1.00/pound | Ave. $0.90 |
| Cherrystones | $0.20 - 0.25/pound | Ave. $0.225 |
| Chowders | $0.10 - 0.15/pound | Ave. $0.125 |

---

* personal communication with dealers and from NMFS Blue Sheet.

The value of the combined net depurable standing crop from both regions based upon 80 pound bushels using the average prices above is as follows:

| | | |
|---|---|---|
| Littlenecks | $ 748,584.00 | at $72.00/bu @ 80 lb. |
| Cherrystones | $2,276,622.00 | at $18.00/bu @ 80 lb. |
| Chowders | $3,934,410.00 | at $10.00/bu @ 80 lb. |
| Total | $6,959,616.00 | |

In commerce, the average weight of a bushel is 60 pounds. Thus, the average ex-vessel price per bushel at this weight would be:

| | |
|---|---|
| Littlenecks | $54.00 |
| Cherrystones | $13.50 |
| Chowders | $ 7.50 |

## Utilization of the Resource

Basically, there are two utilization options, natural depuration through transplants and purification at a depuration plant.

It is not within the scope of this report to engage in a detailed discussion of the viability of transplants or quahog depuration plants. Quahog transplants have been highly successful in terms of transplant survival and natural depuration both in this and other states (New York State, 1976, 1979). In many instances, high levels of setting have occured in previously depleted areas after transplants. Approval of quahog depuration, specific plant design and location are within the purview of other agencies, specifically DEQE and the state Department of Public Health. Discussions of various aspects of quahog depuration can be found in reports by A. Holmsen et al. (1966); W. Heffernan et al. (1970); Marine Research, Inc. (1979), and S. Furfari (1979).

## Natural Depuration

Historically, as previously mentioned, transplanting for natural depuration and propagation has occured and still does. The level of relaying has fluctuated over the years from a high of about 25,000 bushels per year to the

current level of about 8000 bushels per year from both regions.

Transplanting has several advantages beyond utilization of the contaminated stock. First, it employs local fishermen in the harvesting process. Secondly, it provides brood stock to depleted areas in "certified" waters, which under present DMF regulations must normally be held through one spawning season before being opened to harvest. Third, upon opening of the relay area, it provides employment, usually for a second group of fishermen who are allowed to harvest the stock for market. Fourth, if stock is transplanted to a family area, then a large group of recreational fishermen also benefit. Often, large stock is planted in the family areas and the smaller, more valuable quahogs are placed in the commercial areas. Fifth, transplanting can utilize stocks from both "Prohibited" (grossly contaminated) and "Restricted" (moderately contaminated) areas while only quahogs from "Restricted" areas can be used at a depuration plant.

In 1966, relays under DMF auspices ceased because of the high costs of employing Division personnel and vehicles to transport quahogs for the municipalities and due to the belief that the towns should assume this responsibility. Local fishermen in both regions were paid by the towns to do the harvesting. Other factors entered into the decline of relaying, but the most important was near depletion of the highly desired seed, littlenecks, and cherrystones. Most towns did not want great quantities of the less valuable, larger quahogs. In addition, many people erroneously believed that larger quahogs were poor spawners. In effect, many communities were more interested in short-term transplants or a "put and take" system of relays, than in longer term propagation. The net result was a sharp decline in transplants after 1966.

In the interim, hatchery techniques for the production of large volumes of seed quahogs became well developed along with methods of rearing the seed on rafts, or in trays and pens. In most situations, small hatchery produced seed must be protected from predation for 12-18 months by one of these methods until they attain a size of about one inch. At this point, the juveniles can be planted in natural beds until reaching legal size. The whole process takes about 2-2 1/2 years. By 1972, towns were beginning to employ this system and it became the major propagation effort of the seventies consuming a large proportion of their time, effort and budgets for shell stock. There was little interest or money left for transplanting.

The situation is now beginning to reverse itself. Hatchery stock is expensive, $12 - $15 per thousand in the desired sizes. Protective devices such as rafts and pens are also costly and require continual maintenance. The process is not only long, but often requires rehandling the quahogs two or three times and the net results of the effort are not readily determinable. Consequently, many communities have curtailed this activity and others have ceased it altogether. Hence, there is a burgeoning interest in transplanting because it provides more for the money and the effects are more immediate by comparison.

The number of local fishermen employed in each region to harvest for transplants would be determined by the method of harvest and the financial ability of the towns to purchase and transport quahogs under the state's mandatory bidding process. Considering the current fiscal restraints in most towns, it is envisioned that not much more than 12,000 bushels would be transplanted annually in the next year or two. The major factor limiting transplants by the towns appears to be financial.

Cost of harvesting for transplants is dependent upon the catch rate, size of quahogs, gear employed and size or duration of the transplant. Hand gear employs more men but at a higher cost (ave. $0.20/lb) than draggers (ave. $0.115/lb). Thus, the average cost of an 80 lb. bushel containing 60% littlenecks and cherrystones may range from $16.00 - $9.20, respectively.

## Depuration Plants

The two principal advantages of purification at a depuration plant are the nearly instantaneous utilization of the resource, generally within 48 hours after arriving at the plant and the elimination of transplant losses, that quantity of quahogs which after transplanting is not recovered. This method would also employ local fishermen in the harvesting process. Additionally, in accordance with current practice in the contaminated soft-shell clam fishery, diggers from other communities in the Commonwealth could be licensed to harvest for depuration.

The number of fishermen employed would depend primarily on the capacity of the depuration plant. For example, a plant with an annual capacity of 30,000 bushels could employ 38 men at 3 bu./day/man fishing five days a week (261 days/year) or 57 men at 2 bu./day/man. At a capacity of 60,000 bushels per year the number of fishermen would increase to 76 at 3 bu./day or 114 at 2 bu./day. The possibilities are endless depending upon such factors as plant capacity, length of depuration time, daily limits, ex-vessel price per bushel, plant fees, and number of fishing days. If the use of draggers was allowed at higher daily limits, this would diminish the number of hand diggers.

Often, in comparisons of transplanting versus depuration plants, the need for additional law enforcement is cited as a disadvantage to natural depuration because the relay site must also be kept under surveillance. This

is an exaggerated assertion for two reasons. Natural depuration occurs in a matter of days, in most instances at temperatures above 50°F. New York State (1979) regularly practices 21 day natural depuration which includes a wide safety margin. Therefore, the public health significance of relaid quahogs is of short duration. Secondly, enforcement is conducted by local authorities both for public health and resource management reasons. Relay sites are regarded in most communities as a "no-man's land" until opened for harvest and this has been generally respected. The only additional law enforcement required, is that which is willingly accepted by the municipalities as part of the cost of protecting their own investment.

## RECOMMENDATIONS

1) The practice of transplanting quahogs from contaminated waters for natural depuration and propagation should be continued and expanded in order to make this resource available to both the commercial and recreational public fisheries.

2) The Commonwealth should actively assist and support quahog relaying.

3) Considering construction and operating expenses, the size distribution of the current resource, and possible unpredictable fluctuations in abundance, the Commonwealth should not engage in the operation of a quahog depuration facility.

4) Sufficient resource should be reserved to meet the transplant needs of the public fishery should one or more private depuration plants become operational. This could be obtained in part from the "Prohibited" areas.

5) In the event that a depuration plant is approved, DMF should en-

courage the assumption of local control in the effected communities under strict compliance with an approved management plan as provided for in Chapter 130, Section 75 of the M. G. L.

6) Should a depuration plant not become operational, excess resource might be made available under appropriate permits to individuals with private shellfish grants providing there are no conflicting legal restraints.

7) In any event, consideration should be given to allowing municipalities with contaminated quahogs to operate relay programs under an approved management plan and with the necessary permits issued by DMF.

## SUMMARY

A survey of the deepwater quahog resource in contaminated waters of the New Bedford Harbor-Clarks Cove and Taunton River-Mt. Hope Bay regions was conducted by DMF in 1980 and 1981. A standing crop of 483,212 bushels was estimated for the former region and 137,972 bushels for the latter, in the areas surveyed. Net depurable standing crop in moderately contaminated waters was estimated at 419,216 bushels in New Bedford Harbor-Clarks Cove and 111,101 bushels in Taunton River-Mt. Hope Bay. Total depurable standing crop amounted to 530,317 bushels, 74% of which are chowder sized. Estimated value of this resource is about $6,959,616.00.

Approximately 2,328 acres were unsampled between the two regions because of inaccessibility with a dredge boat. About 1,339 acres of the unsampled area is thought to be moderately to highly productive.

Predation was not found to be a significant factor in the population dynamics of either region.

Utilization through natural depuration by transplants and purification at a depuration plant are suggested. An annual yield of 20% of the net depurable standing crop is recommended.

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Table 1. New Bedford Harbor - Clarks Cove.

Standing Crop of Quahogs in Bushels

| Size | Clarks Cove | | New Bedford Harbor | | Inner N. B. Harbor | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Bushels | % | Bushels | % | Bushels | % | Bushels | % |
| Little neck 2-2 1/4" | 4,707 | 2 | 5,709 | 2 | 55 | 1 | 10,471 | 2 |
| Cherrystone 2 1/4" - 2 3/4" | 55,256 | 24 | 77,942 | 31 | 1,660 | 34 | 134,858 | 28 |
| Chowder > 2 3/4" | 168,819 | 74 | 165,948 | 67 | 3,116 | 65 | 337,883 | 70 |
| Total | 228,782 | 100 | 249,599 | 100 | 4,831 | 100 | 483,212 | 100 |
| Productive Towable Acres | 1,243 | | 2,380 | | 111 | | 3,734 | |
| Average Bushels/acre | 184.05 | | 104.87 | | 43.52 | | 129.40 | |

Table 2. Taunton River - Mt. Hope Bay.

Standing Crop of Quahogs in Bushels

| Size | Mt. Hope Bay |  | Taunton River |  | Total |  |
|---|---|---|---|---|---|---|
|  | Bushels | % | Bushels | % | Bushels | % |
| Little neck 2-2 1/4" | 642 | 1 | 1,128 | 3 | 1,770 | 1 |
| Cherrystone 2 1/4 - 2 3/4" | 5,987 | 6 | 11,959 | 29 | 17,946 | 13 |
| Chowder > 2 3/4" | 89,752 | 93 | 28,504 | 68 | 118,256 | 86 |
| Total | 96,381 | 100 | 41,591 | 100 | 137,972 | 100 |
| Productive Towable Acres | 1,933 |  | 1,078 |  | 3,011 |  |
| Average Bushels/acre | 49.86 |  | 38.58 |  | 45.82 |  |

## Table 3. Taunton River - Mt. Hope Bay

Standing Crop of Quahogs in Bushels by Area

| Area | Acres | Bu/acre | Littleneck | Cherrystone | Chowder | Total |
|---|---|---|---|---|---|---|
| Mt. Hope Bay | 1,506 | 35.59 | 388 | 2,839 | 50,385 | 53,612 |
| Lee River Bed 1 | 130 | 93.45 | 68 | 1,629 | 10,452 | 12,149 |
| East side Shipping Channel Bed 2 | 204 | 105.57 | 154 | 998 | 20,385 | 21,537 |
| Gardners Neck Bed 3 | 93 | 97.66 | 32 | 521 | 8,530 | 9,083 |
| Total | 1,933 | 49.86 | 642 | 5,987 | 89,752 | 96,381 |
| Taunton River | 892 | 22.84 | 524 | 4,827 | 15,028 | 20,379 |
| Pierce's Beach Bed 1 | 37 | 83.35 | 163 | 1,540 | 1,381 | 3,084 |
| F.R. Country Club | 74 | 130.55 | 215 | 2,942 | 6,504 | 9,661 |
| Shell Oil Bed 3 | 20 | 156.65 | 57 | 1,122 | 1,954 | 3,133 |
| Breeds Cove Bed 4 | 55 | 96.98 | 169 | 1,528 | 3,637 | 5,334 |
| Total | 1,078 | 38.58 | 1,128 | 11,959 | 28,504 | 41,591 |
| Combined Region Total | 3,011 |  | 1,770 | 17,946 | 118,256 | 137,972 |

Table 4. Estimated Net Depurable Standing Crop in Bushels from Deepwater.

| Area | Littleneck | | Cherrystone | | Chowder | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Bushels | % | Bushels | % | Bushels | % | Bushels | % |
| Clarks Cove | 4,707 | | 55,256 | | 168,819 | | 228,782 | |
| | - 178 | | - 1,688 | | - 14,856 | | - 16,722 | |
| | *4,529* | 2 | *53,568* | 25 | *153,963* | 73 | *212,060* | |
| New Bedford Harbor | 5,709 | | 77,942 | | 165,948 | | 249,599 | |
| | - 1,288 | | - 20,451 | | - 20,704 | | - 42,443 | |
| | *4,421* | 2 | *57,491* | 28 | *145,244* | 70 | *207,156* | |
| Inner New Bedford Harbor | 0 | | 0 | | 0 | | 0 | |
| Total | *8,950* | 2 | *111,059* | 27 | *299,207* | 71 | *419,216* | |
| Mt. Hope Bay | 642 | | 5,987 | | 89,752 | | 96,381 | |
| | - 154 | | - 998 | | - 20,385 | | - 21,537 | |
| | *488* | 1 | *4,989* | 6 | *69,367* | 93 | *74,844* | |
| Taunton River | 1,128 | | 11,959 | | 28,504 | | 41,591 | |
| | - 169 | | - 1,528 | | - 3,637 | | - 5,334 | |
| | *959* | 3 | *10,431* | 29 | *24,867* | 68 | *36,257* | |
| Total | *1,447* | 1 | *15,420* | 14 | *94,234* | 85 | *111,101* | |
| *Total all regions* | *10,397* | 2 | *126,479* | 24 | *393,441* | 74 | *530,317* | |

Figure 1A
Clarks Cove
Sampling Stations

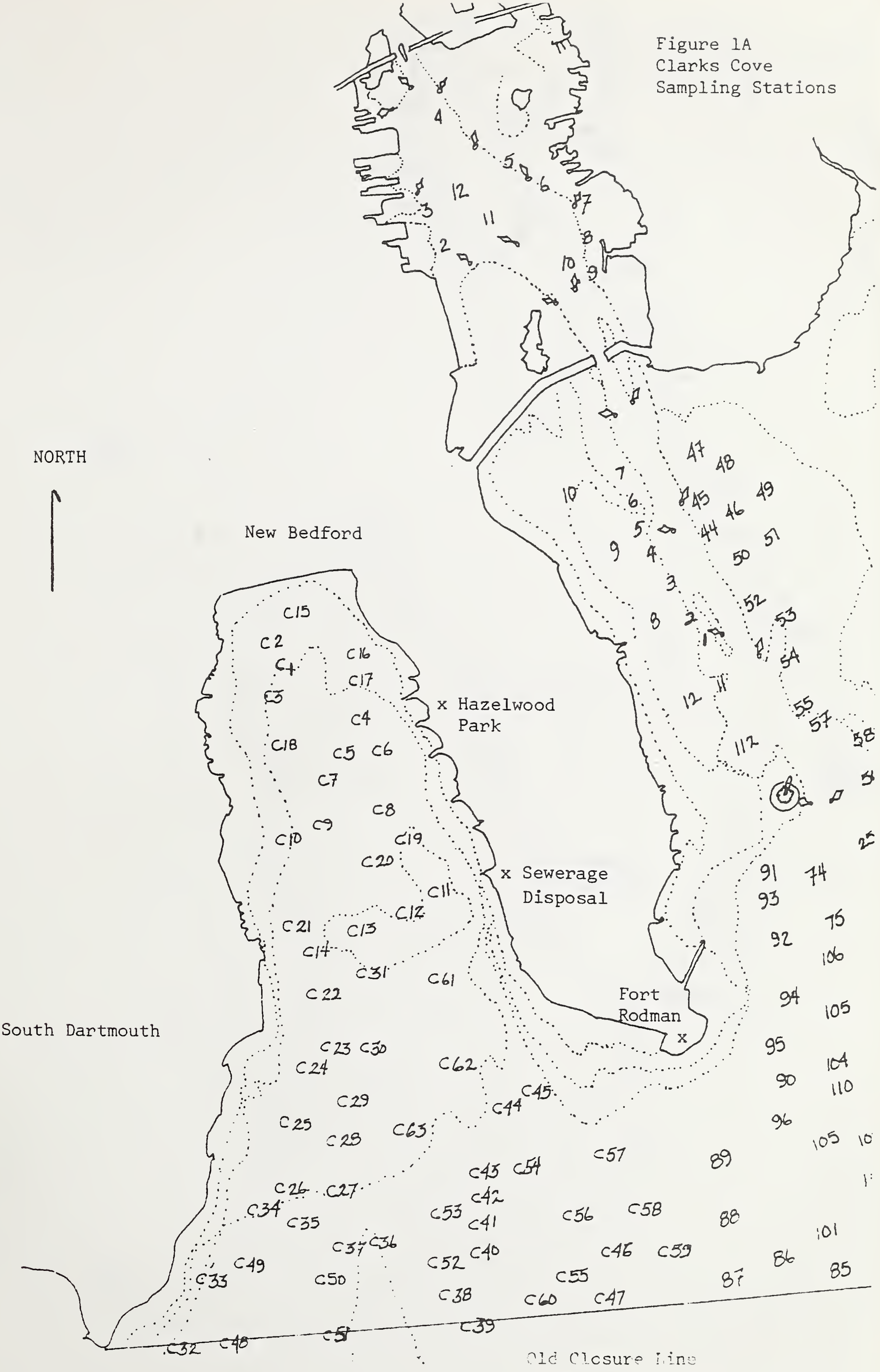
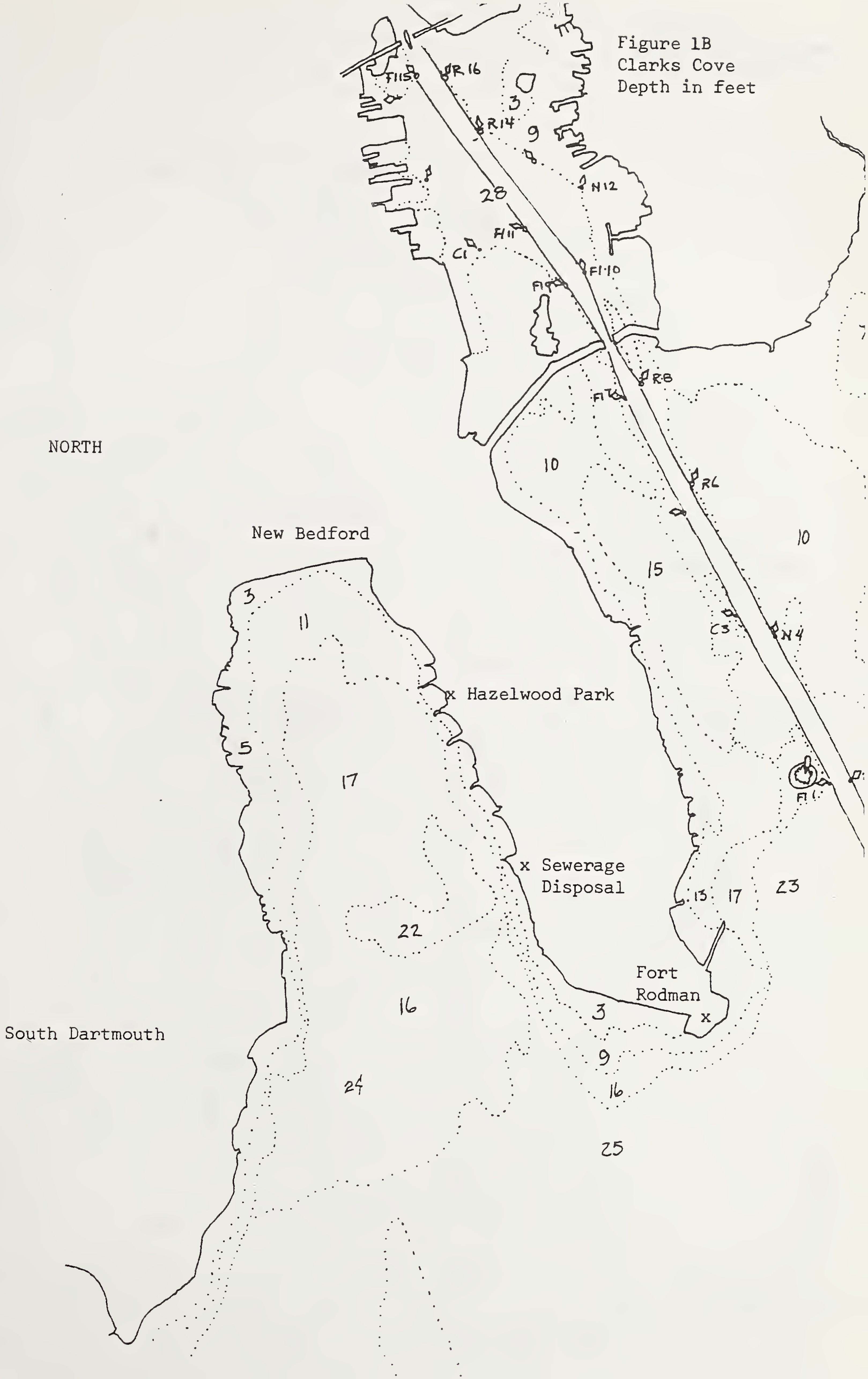


Figure 1B
Clarks Cove
Depth in feet



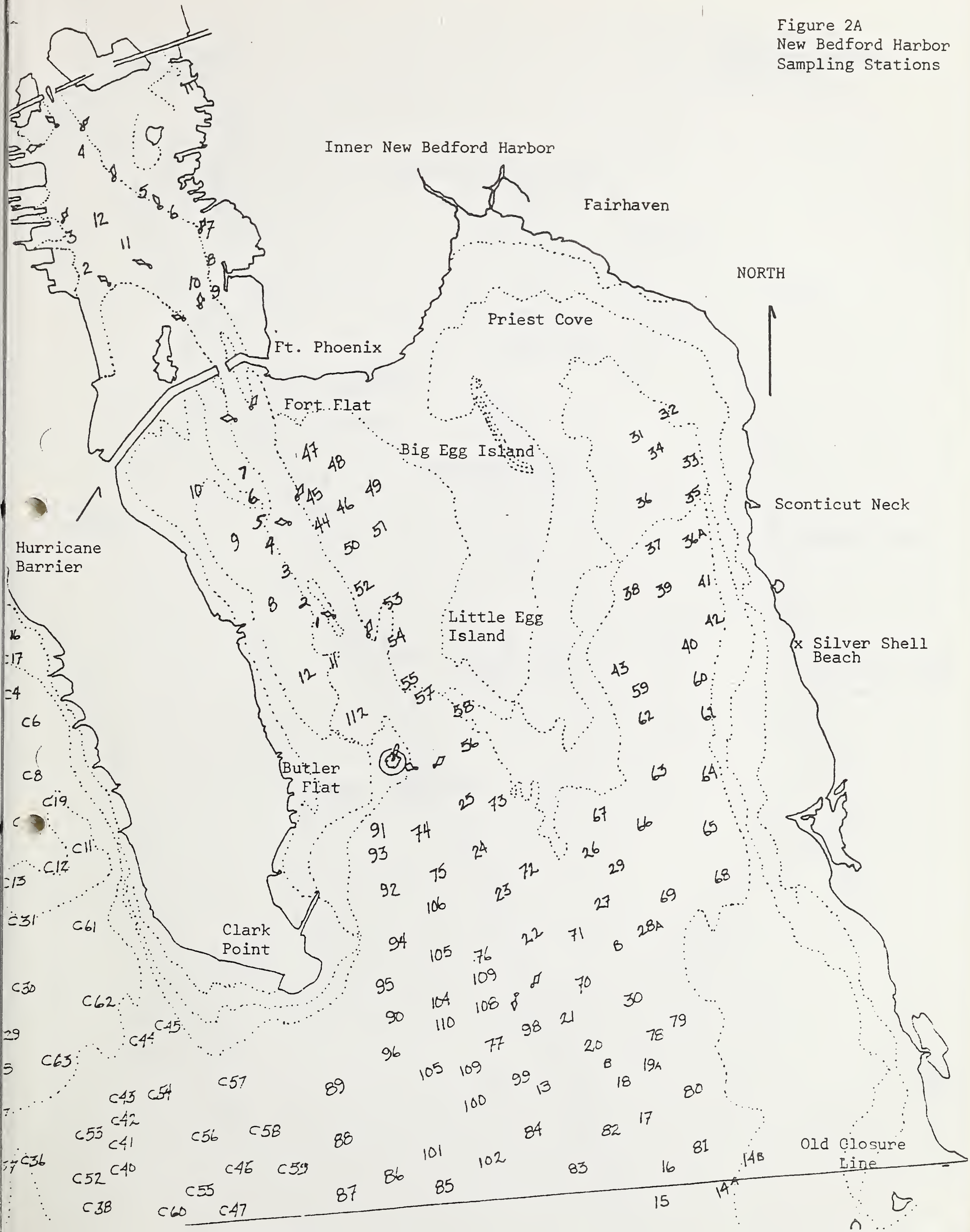


Figure 2A
New Bedford Harbor
Sampling Stations

Figure 2B
New Bedford Harbor
Depth in feet

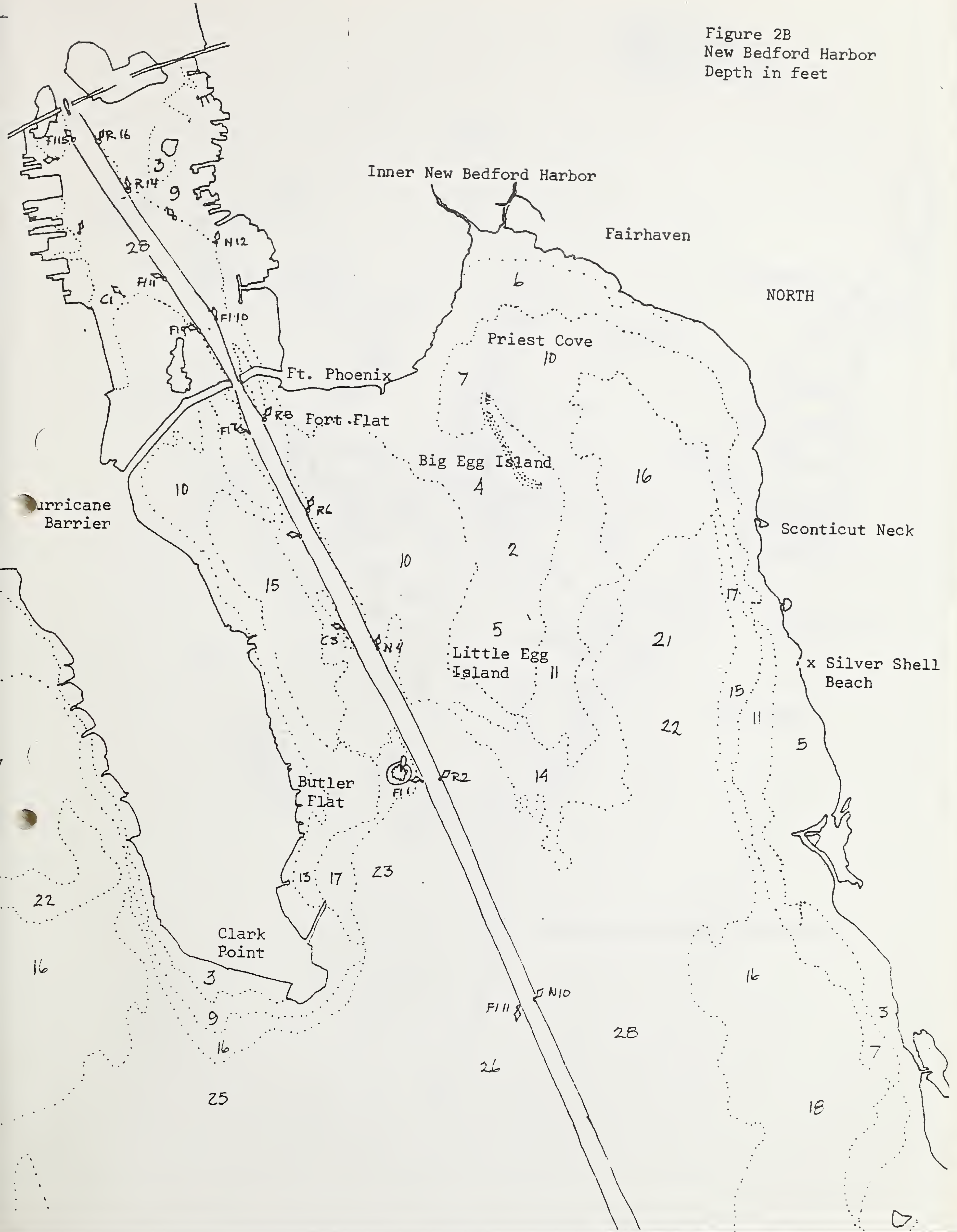


Figure 3A
Mount Hope Bay
Sampling Stations
F 1-63 and TR 53-62

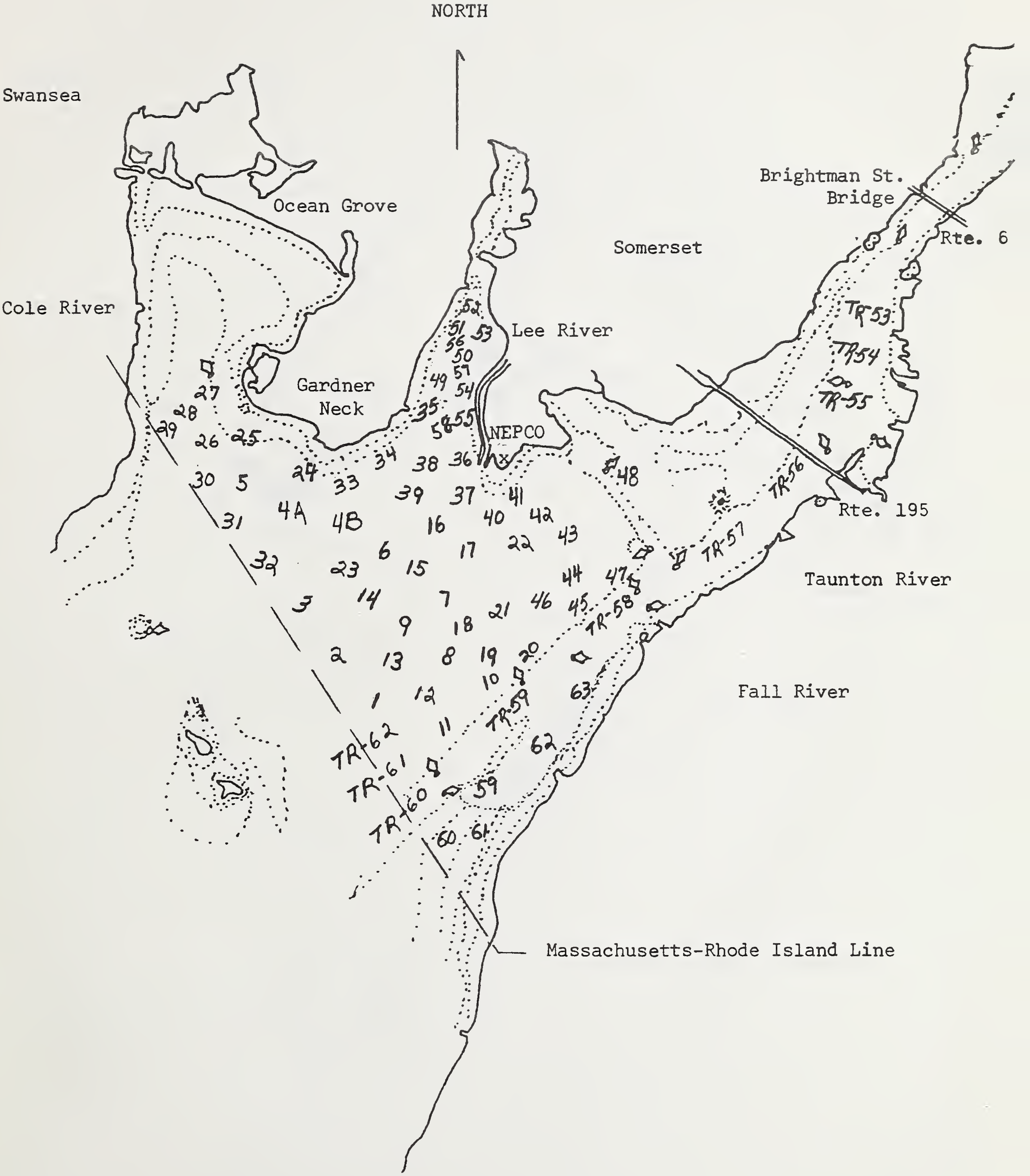


Figure 3B
Mount Hope Bay
Depth in feet
Shellfish Bed 1-3

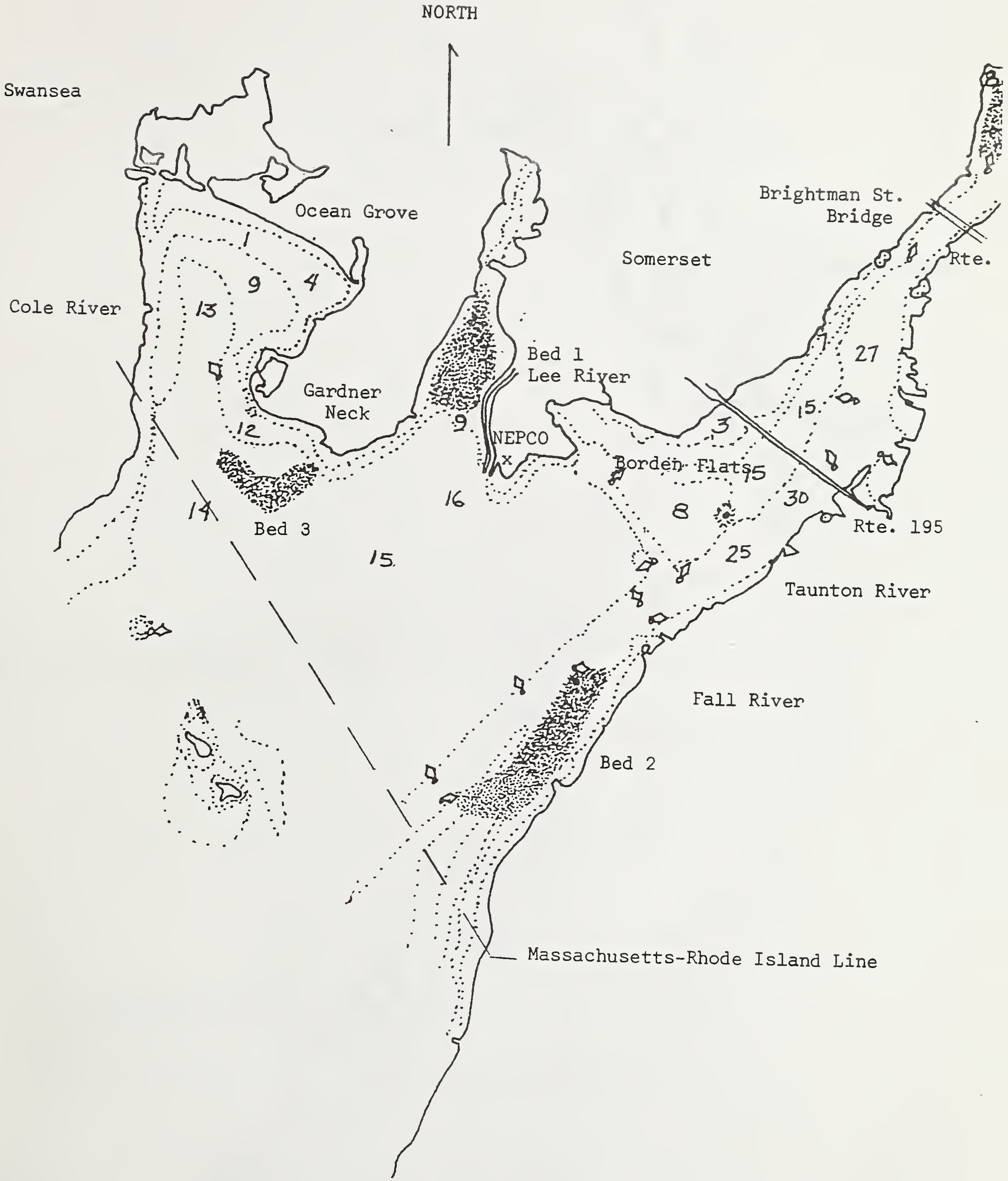


Figure 4A
Taunton River
Sampling Stations
TR 1-52

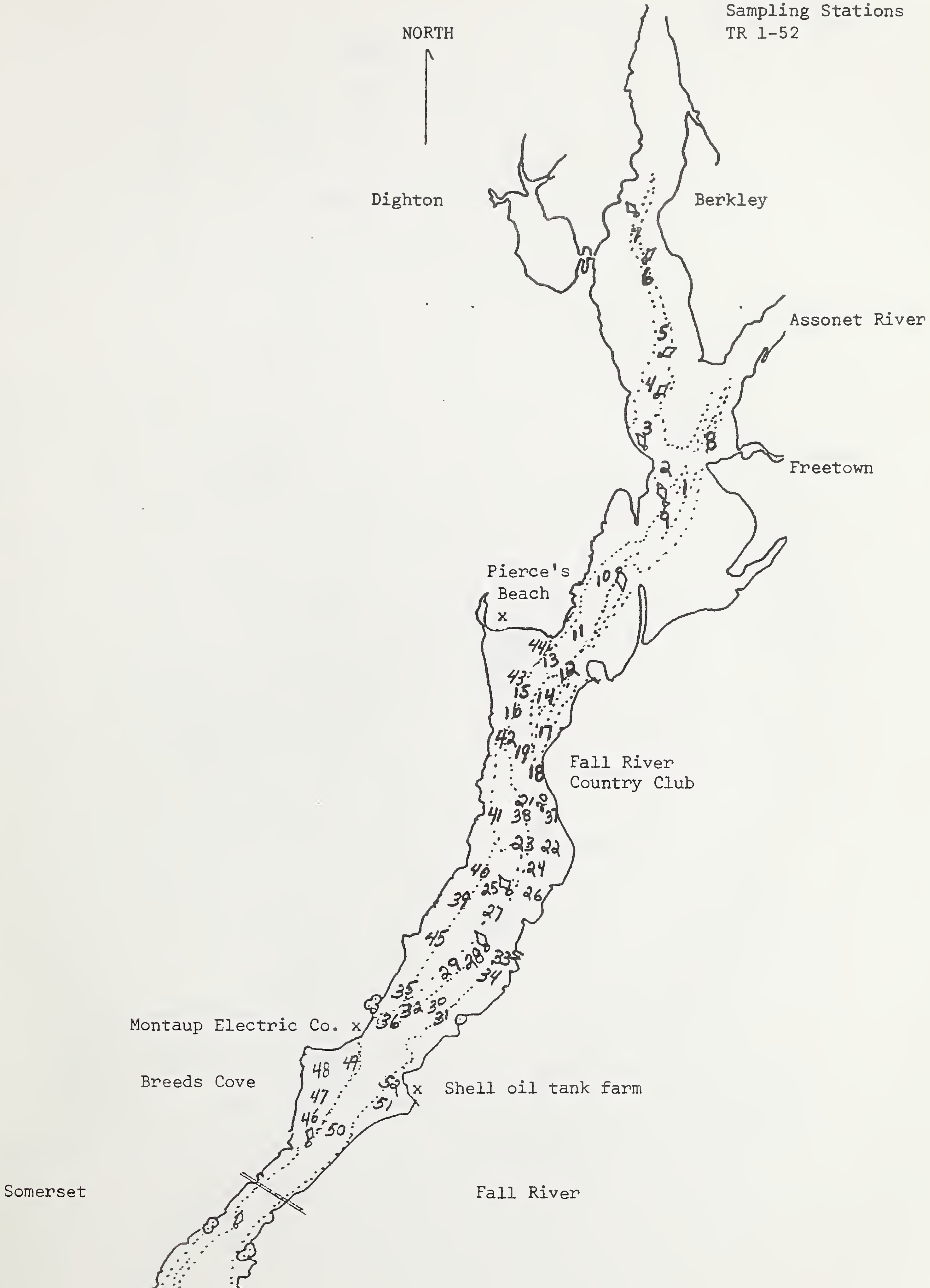
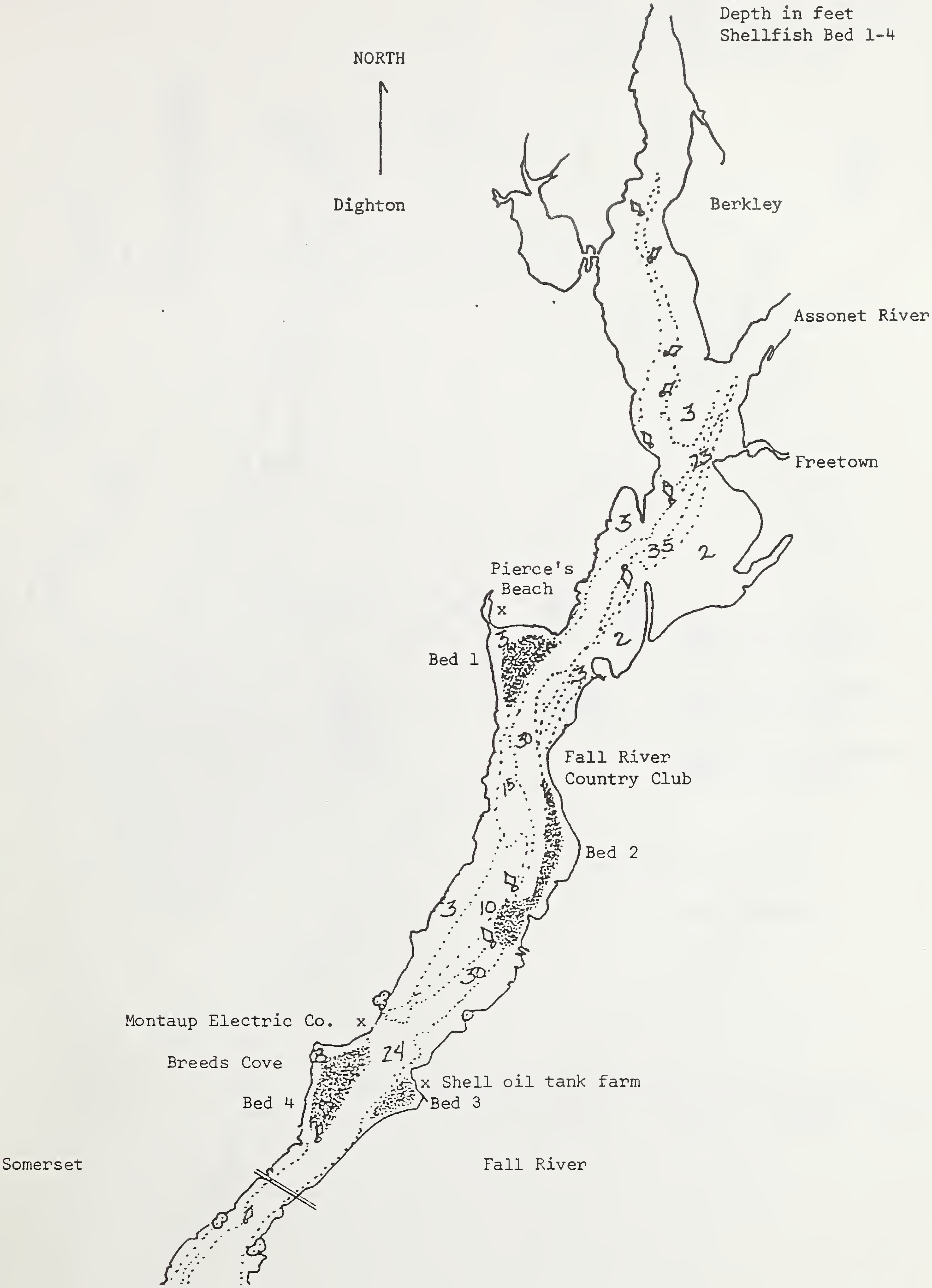
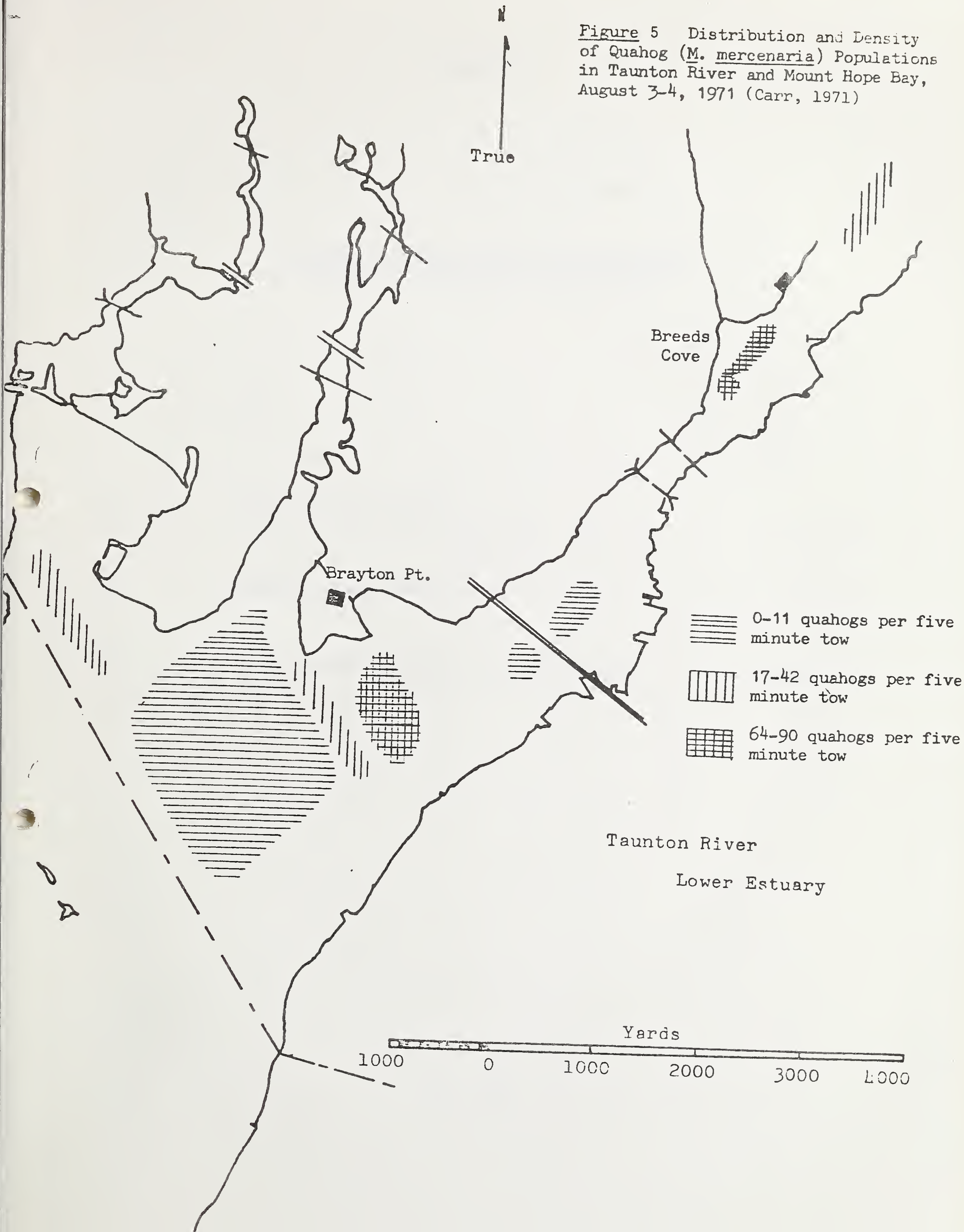


Figure 4B
Taunton River
Depth in feet
Shellfish Bed 1-4





N
True
Breeds Cove
Brayton Pt.
0-11 quahogs per five minute tow
17-42 quahogs per five minute tow
64-90 quahogs per five minute tow
Taunton River
Lower Estuary
Yards
1000
0
1000
2000
3000
4000

Figure 5 Distribution and Density of Quahog (*M. mercenaria*) Populations in Taunton River and Mount Hope Bay, August 3-4, 1971 (Carr, 1971)

# APPENDIX 1A

# ASSESSMENT OF QUAHOG STOCKS IN CONTAMINATED WATERS OF SOUTHEASTERN MASSACHUSETTS

| | | |
|---|---|---|
| AI | Sampling Station Data | 1-5 |
| AII | Length-Frequency Data | 1-5 |
| AIII | Graphs, Percent of Actual Catch in Samples | Figures 1-4 |

June 1983

## SAMPLING STATION DATA

LOCATION: Clarks Cove

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| C14 a | 137 | | | Hard sandy mud | | Clean tow. |
| b | 148 | 143 | .27 | " " " | 953 | Codium, small stone. |
| C15 a | 49 | | | Soft sticky mud | | Dredge tooth clogged on refuse. |
| b | 84 | 67 | .13 | " " " | 446 | " " " " " |
| C16 a | 106 | | .20 | " " " | 706 | |
| C17 a | 139 | | .26 | Soft sticky mud | 926 | |
| C18 a | 53 | | | Hard sandy mud | | Clean tow. |
| b | 157 | 105 | .20 | " " " | 700 | " " |
| C19 a | 223 | | | Soft mud. | | |
| b | 248 | 235 | .45 | " " | 1566 | |
| C20 a | 202 | | | " " | | |
| b | 267 | 235 | .45 | " " | 1566 | |
| C21 a | 49 | | | Hard sandy mud | | |
| b | 59 | 54 | .10 | " " " | 360 | |
| C22 a | 205 | | | " " " | | Codium (heavy). |
| b | 318 | 261 | .50 | " " " | 1740 | " " |
| C23 a | 188 | | | Hard sand | | Clean tow. |
| b | 114 | 151 | .29 | " " | 1006 | Codium (light). |
| C24 a | 133 | | | " " | | |
| b | 71 | 102 | .19 | " " | 680 | |
| C25 a | 247 | | | Hard sandy mud | | |
| b | 169 | 208 | .40 | " " " | 1386 | |
| C26 a | 112 | | .21 | Hard sand | 746 | Clean tows. |

# SAMPLING STATION DATA

LOCATION: Clarks Cove

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| C1 a | 56 | | | Soft mud | | |
| b | 95 | 75 | .14 | " " | 500 | |
| C2 a | 100 | | | | | |
| b | 76 | 88 | .16 | " " | 586 | |
| C3 a | 215 | | .40 | | 1433 | |
| C4 a | 116 | | | Hard sandy mud | | |
| b | 230 | 173 | .33 | " " " | 1153 | Codium. |
| C5 a | 197 | | | " " " | | |
| b | 233 | 215 | .40 | " " " | 1433 | |
| C6 a | 190 | | .36 | " " " | 1266 | |
| C7 a | 201 | | | " " " | | Clean tow. |
| b | 213 | 207 | .40 | " " " | 1386 | " " |
| C8 a | 260 | | | " " " | | " " . Many small quahogs falling thru ring |
| b | 85 | 172 | .33 | " " " | 1146 | " " " " " " " " |
| C9 a | 76 | | | " " " | | " " " " " " " " |
| b | 175 | 125 | .24 | " " " | 833 | " " " " " " " " |
| C10 a | 105 | | | " " " | | |
| b | 282 | 193 | .37 | " " " | 1286 | |
| C11 a | 220 | | | Soft mud | | |
| b | 238 | 229 | .44 | " " | 1526 | |
| C12 a | 163 | | | Mud - sandy mud | | |
| b | 117 | 140 | .27 | " " " | 933 | |
| C13 a | 137 | | | | | Crepidula shell. |
| b | 155 | 146 | .28 | " " " | 973 | |

# SAMPLING STATION DATA

LOCATION: Clarks Cove

| STA. # | #/TOW | AVE./TOW | #/FT$^{2}$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| C27 a | 181 | | .34 | Hard sandy mud | 1206 | |
| C28 a | 14 | | | " " " | | Many spider crabs. |
| b | 127 | 70 | .13 | " " " | 466 | |
| C29 a | 28 | | .05 | " " " | 186 | |
| C30 a | 67 | | | " " " | | Codium (heavy) spider crabs. |
| b | 68 | 68 | .13 | " " " | 453 | " " " " |
| C31 a | 195 | | | Soft mud | | Clean tow, Codium (light) edge of drop off. |
| b | 82 | 138 | .26 | " " | 920 | Mud and old shells in bag. |
| C32 a | 30 | | | Hard sandy mud | | |
| b | 24 | | | " " " | | |
| c | 21 | 27 | .05 | " " " | 180 | |
| C33 a | 165 | | | " " " | | |
| b | 219 | 192 | .37 | " " " | 1280 | |
| C34 a | 173 | | | " " " | | |
| b | 185 | 179 | .34 | " " " | 1193 | |
| C35 a | 147 | | | " " " | | |
| b | 108 | 127 | .24 | " " " | 846 | |
| C36 a | 108 | | | Soft mud | | |
| b | 180 | 144 | .27 | " " | 960 | |
| C37 | 8 | | .02 | " " | 53 | |
| C38 a | 98 | | | " " | | |
| b | 60 | 79 | .15 | " " | 526 | |

# SAMPLING STATION DATA

LOCATION: Clarks Cove

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| C39 a | 74 | | | Soft sticky mud | | |
| b | 75 | 50 | .09 | " " " | 333 | |
| C40 a | 9 | | | " " " | | |
| b | 24 | 16 | .03 | " " " | 106 | |
| C41 a | 34 | | .06 | " " " | 226 | |
| C42 a | 96 | | | " " " | | |
| b | 16 | 56 | .11 | " " " | 373 | |
| C43 a | 132 | | .25 | " " " | 880 | |
| C44 a | 139 | | | " " " | 926 | a & b in different grids. |
| b | 183 | | | " " " | 1220 | |
| C45 a | 7 | | .01 | " " " | 46 | |
| C46 a | 20 | | .04 | " " " | 133 | |
| C47 a | 11 | | .02 | " " " | 73 | |
| C48 a | 24 | | | " " " | | Large rocks. |
| b | 14 | 19 | .04 | " " " | 126 | Horseshoe crabs. |
| C49 a | 83 | | | Hard sandy mud | | |
| b | 58 | 70 | .13 | " " " | 466 | |
| C50 a | 36 | | | Soft sticky mud | | Old shells. |
| b | 83 | 60 | .11 | " " " | 400 | |
| C51 a | 46 | | | Hard sandy mud | | |
| b | 20 | 33 | .06 | " " " | 220 | |
| C52 a | 19 | | | Soft mud | | |
| b | 30 | 25 | .05 | " " | 166 | |

# SAMPLING STATION DATA

LOCATION: Clarks Cove

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| C53 a | 44 | | | Hard sandy mud | | Clean tow. |
| b | 43 | 44 | .08 | " " " | 293 | " " |
| C54 a | 11 | | | " " " | | Piece of cable in teeth. |
| b | 91 | 51 | .10 | " " " | 340 | Stones - edge of a ledge. |
| C55 a | 13 | | | " " " | | Shell, stone, Crepidula. |
| b | 7 | 10 | .07 | " " " | 66 | " " " |
| C56 a | 62 | | | Soft sticky mud | | |
| b | 173 | 118 | .22 | " " " | 786 | |
| C57 a | 58 | | | " " " | | |
| b | 118 | 88 | .17 | " " " | 586 | |
| C58 a | 146 | | | Soft sticky mud | | |
| b | 34 | 90 | .17 | " " " | 600 | |
| C59 a | 4 | | | " " " | | |
| b | 12 | 8 | .02 | " " " | 53 | |
| C60 a | 24 | | | Hard sandy mud | | Clean tow, some shells. |
| b | 18 | 21 | .04 | " " " | 140 | " " " " , stones, & spider crabs. |
| C61 a | 129 | | | " " " | | Codium (heavy), rocks. |
| b | 86 | 108 | .21 | " " " | 720 | " " " , shells. |
| C62 a | 220 | | | " " " | | |
| b | 230 | 225 | .42 | " " " | 1500 | |
| C63 a | 127 | | | Soft sticky mud | | |
| b | 159 | 143 | .27 | " " " | 953 | |

# SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 1 a | 144 | | | Soft mud | | |
| b | 171 | 158 | .30 | " " | 1053 | |
| 2 a | 44 | | | " " | | |
| b | 49 | 47 | .09 | " " | 313 | |
| 3 a | 46 | | | " " | | |
| b | 126 | 86 | .16 | " " | 573 | |
| 4 a | 58 | | | " " | | |
| b | 84 | 71 | .14 | " " | 473 | |
| 5 a | 104 | | | " " | | |
| b | 157 | 131 | .25 | " " | 873 | |
| 6 a | 84 | | | " " | | |
| b | 205 | 145 | .28 | " " | 966 | |
| 7 a | 202 | | | " " | | |
| b | 195 | 199 | .38 | " " | 1326 | |
| 8 a | 149 | 59.* | .11 | " " | 397 | * 2 min. 30 sec. tow (adjusted). |
| 9 a | 41 | | | " " | | |
| b | 59 | 50 | .10 | " " | 333 | |
| 10 a | 91 | | | " " | | |
| | | | .17 | " " | 606 | |
| 11 a | 48 | | | " " | | |
| b | 22 | 35 | .07 | " " | 233 | |
| 12 a | 26 | | | " " | | |
| b | 34 | 30 | .06 | " " | 200 | |
| 13 a | 7 | | | " " | | |
| b | 1 | 4 | .01 | " " | 26 | Cable dumping area. |
| 14 a | 15 | | | Hard sandy mud | | Shell and stone. |
| b | 3 | 9 | .02 | " " " | 60 | Small stones. |
| 15 a | 9 | | | " " " | | Shell and stone. |
| b | 27 | 17 | .03 | " " " | 113 | Shell and stone. |

# SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 16 a | 4 | | | Hard sandy mud | | Shell and stone; 16 b broke line in tow. |
| | | | .01 | | 26 | |
| 17 a | 17 | | | " " " | | Shell and stone. |
| b | 26 | 22 | .04 | " " " | 146 | Shell and stone. |
| 18 a | 79 | | | " " " | | Shell, stone and Codium. |
| b | 124 | 102 | .19 | " " " | 680 | Shell and stone. |
| 19 a | 178 | | | " " " | 1186 | Clean tow, some small stone. |
| b | 77 | 128 | .24 | " " " | 513 | Clean tow. |
| 20 a | 80 | | | Hard sticky mud | | |
| b | 92 | 86 | .16 | " " " | 573 | Small stone. |
| 21 a | 9 | | | " " " | | Large rocks at end of tow. |
| b | 100 | 55 | .10 | " " " | 366 | Rocks in bag. |
| 22 a | 115 | | | Hard sandy mud | | |
| b | 58 | 86 | | Hard sandy mud | 573 | Tows not quite together. |
| 23 a | 150 | | | " " " | | Shell, stone, cables, refuse. |
| b | 28 | 89 | .17 | " " " | 593 | Shell, cable. |
| 24 a | 133 | | | " " " | | Shell and stone. |
| b | 218 | 176 | .34 | " " " | 1173 | |
| 25 a | 16 | | | Hard sticky mud | | Stones, teeth clogged in mud. |
| b | 35 | 26 | .05 | " " " | 173 | Stones. |
| 26 a | 69 | | | Hard sandy mud | | Stones. |
| b | 79 | 74 | .14 | " " " | 493 | " |
| 27 a | 46 | | | Hard sticky mud | | |
| b | 1 | 24 | .05 | " " " | 160 | |
| 28 a | 13 | | | Hard sandy mud | | Shell and stone. |
| b | 23 | 18 | .03 | " " " | 120 | Shell and stone. |
| 29 a | 27 | | | " " " | | Stone. |
| b | 124 | 76 | .15 | " " " | 506 | Stone. |

## SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 30 a | 73 | | | Hard sandy mud | | Stone. |
| b | 123 | 98 | .19 | " " " | 653 | Shell, stone, Codium; broken bottom. |
| 31 a | 13 | | | Hard sticky mud | | Shell, stone, Codium, red weed. |
| b | 25 | 19 | .04 | " " " | 126 | " " " " " |
| 32 a | 17 | | | " " " | | " " " " " |
| b | 18 | 18 | .03 | " " " | 120 | " " " " " |
| 33 a | 22 | | | Hard sticky mud | | Stone. |
| | | | .04 | | 146 | |
| 34 a | 11 | | | " " " | | Shell, stone, Codium. |
| b | 20 | 16 | .03 | " " " | 106 | Shell, stone, Codium. |
| 35 a | 39 | | | Hard sandy mud | | Shell, stone, Codium, red weed. |
| b | 52 | 46 | .09 | " " " | 306 | " " " " " |
| 36 a | 38 | | | Hard sticky mud | | " " " " " |
| b | 10 | 24 | .05 | " " " | 160 | " " " " " |
| 36 aa | 17 | | | " " " | | " " " " " |
| bb | 47 | 32 | .06 | " " " | 213 | " " " " " |
| 37 a | 19 | | | Hard sticky mud | | Shell, stone, Codium, red weed. |
| b | 29 | 24 | .05 | " " " | 160 | |
| 38 a | 101 | | | Hard sandy mud | | Shell, stone. |
| | | | .19 | | 673 | |
| 39 a | 13 | | | " " " | | Clean tow. |
| b | 81 | 47 | .09 | " " " | 313 | " " |
| 40 a | 89 | | | Soft mud | | Stone Codium. |
| b | 50 | 70 | .13 | " " | 466 | " " |
| 41 a | 44 | | | Hard sandy mud | | Shell, stone, Codium. |
| b | 40 | 42 | .08 | " " " | 280 | " " " |
| 42 a | 1 | | | " " " | | Codium (heavy); 18' deep. Scallops |
| b | 5 | 3 | .006 | Hard sticky mud | 20 | Stone, Codium, Crepidula 24' deep-scallops. |
| c | 0 | | | " " " | | " " " " " |

## SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 43 a | 68 | | | Hard sticky mud | | Stone, Codium, Crepidula, scallops. |
| b | 143 | 106 | .20 | " " " | 706 | " " " |
| 44 a | 221 | | | " " " | | " " " oysters. |
| b | 126 | 174 | .33 | " " " | 1160 | " " " oysters. |
| 45 a | 203 | | | Hard sandy mud | | " " |
| b | 133 | 168 | .32 | " " " | 1120 | " " " |
| 46 a | 66 | | | " " " | | " " oysters. |
| b | 17 | 42 | .08 | " " " | 280 | " " oysters. |
| 47 a | 100 | | | " " " | | " " hung dredge 1/2 tow. |
| b | 142 | 121 | | " " " | 806 | " " " |
| 48 a | 56 | | | " " " | | " " 12' contour. |
| b | 21 | 39 | .07 | " " " | 260 | " " |
| 49 a | 1 | | | " " " | | " " 10' contour. |
| b | 3 | 2 | .004 | " " " | 13 | " " |
| 50 a | 94 | | | Hard sandy mud | | Codium, Crepidula 15'. |
| b | 32 | 63 | .12 | " " " | 420 | Stone, Codium, Crepidula 15'. |
| 51 a | 1 | | | " " " | | " " scallop. |
| b | 4 | 3 | | " " " | 20 | " " broken towline 3x. |
| 52 a | 86 | | | Sticky mud. | | " " Crepidula |
| b | 48 | 67 | .13 | " " | 446 | " " " |
| 53 a | 108 | | | Hard sandy mud | | " old shell. |
| b | 132 | 120 | .23 | " " " | 800 | " old shell. |
| 54 a | 45 | | | " " " | | Stone, Codium, Crepidula 18'. |
| b | 50 | 48 | .09 | " " " | 320 | " " " |
| 55 a | 2 | | | " " " | | Full bag of old shells, pieces of pipe. |
| b | 33 | 18 | .03 | " " " | 120 | " " " " " and stone. |
| 56 a | 174 | | | " " " | | Shell and small stone 24'. |
| b | 91 | 133 | .25 | " " " | 886 | " " " " |

# SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 57 a | 12 | | | Hard sandy mud | | Shell and small stone 18'. |
| | | | .02 | " " " | 80 | " " " " |
| 58 a | 61 | | | " " " | | " " " " 18'. |
| b | 17 | 39 | .07 | " " " | 260 | " " " " |
| 59 a | 92 | | | " " " | | Shell and stone. |
| b | 79 | 86 | .16 | " " " | 573 | " " " |
| 60 a | 94 | | | Soft sandy mud | | Clean tow. |
| b | 29 | 62 | .12 | " " " | 413 | " " |
| 61 a | 90 | | | Hard sticky mud | | Stone, Codium, Crepidula. |
| b | 91 | 90 | .17 | " " " | 600 | " " " |
| 62 a | 120 | | | Soft sandy mud | | Stone, red weed. |
| b | 162 | 142 | .27 | " " " | 284 | Stone. |
| 63 a | 73 | | | Soft mud | | Shell and stone. |
| b | 145 | 109 | .21 | Soft sandy mud | 726 | Stone, Crepidula, red weed. |
| 64 a | 81 | | | Hard sandy mud | | Stone, Codium, shell. |
| b | 130 | 106 | .20 | " " " | 706 | " " " |
| 65 a | 56 | | | " " " | | Full bag Codium. |
| b | 51 | 54 | .10 | " " " | 360 | " " " |
| 66 a | 79 | | | Hard sticky mud | | Codium. |
| b | 121 | 100 | .19 | " " " | 666 | Large stones. |
| 67 a | 70 | | | Hard sandy mud | | Small stone, circular tow edge of shoal. |
| b | 158 | 114 | .21 | " " " | 760 | " ", " " " " " |
| 68 a | 0 | | | " " " | | Large stones, much Codium, Crepidula. |
| b | 9 | | | " " " | | " " " |
| c | 67 | | | " " " | | " " " |
| d | 91 | 42 | .08 | " " " | 280 | Small stones, " " " |
| 69 a | 38 | | | " " " | | Stone, Codium, shell. |
| b | 61 | 50 | .10 | " " " | 333 | " " |
| 70 a | 70 | | | " " " | | Broke off tow, line old cables, shell |
| b | 20 | | | " " " | | " " ", " clean tow. |

## SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 71 a | 97 | | | Hard sandy mud | | Small stone, Codium. |
| b | 31 | 64 | .12 | " " " | 426 | " shell. |
| 72 a | 175 | | | " " " | 1166 | Small stone, Codium. |
| b | 716 | 446 | .85 | Soft mud | 4773 | Clean tow. |
| 73 a | 105 | | | Hard sandy mud | | Large stones. |
| | | | .20 | | 700 | |
| 74 a | 33 | | | Soft mud | | Clean tow. |
| b | 4 | 33 | .06 | " " | 220 | Hung on cable, no tow. |
| 75 a | 75 | | | " " | | " " " " " |
| | | | .14 | | 500 | |
| 76 a | 17 | | | " " | | " " " " " |
| | | | .03 | | 113 | |
| 77 a | 12 | | | " " | | " " " " " |
| | | 80 | .02 | | 80 | |
| 78 a | 96 | | | Hard sandy mud | | Some stone. |
| b | 83 | 90 | .17 | " " " | 600 | " " |
| 79 a | 22 | | | " " " | | Stone. |
| b | 4 | 22 | | " " " | 146 | Broke off, cables. |
| 80 a | 1 | | | " " " | | Stone, starfish. |
| b | 9 | 5 | .01 | " " " | 33 | " " |
| 81 a | 1 | | | " " " | | Stone, shell, starfish. |
| b | 2 | 2 | .004 | " " " | 13 | " " " |
| 82 a | 3 | | | Soft mud | | |
| b | 33 | 18 | .03 | " " | 120 | |
| 83 a | 30 | | | Hard sandy mud | | Sea scallop shell. |
| b | 14 | 22 | .04 | " " " | 146 | " " " |
| 84 a | 3 | | | Soft mud | | 1/2 tow hung on cables, S.S. shell. |
| b | 11 | | | " " | | " " " " " " " " |
| 85 a | 90 | | | " " | | Much seed falling through rings. |
| b | 128 | 109 | .21 | " " | 726 | " " " " " |

## SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 86 a | 120 | | | Soft mud | | Small stone, shell. |
| b | 93 | 107 | .20 | " " | 713 | " " " |
| 87 a | 36 | | | " " | | " " " |
| b | 8 | 22 | .04 | " " | 146 | " " " |
| 88 a | 253 | | | " " | | " " " |
| b | 173 | 213 | .41 | " " | 1420 | " " |
| 89 a | 76 | | | " " | | " |
| b | 293 | 185 | .35 | " " | 1233 | " , seed falling through rings. |
| 90 a | 143 | | | " " | | Small stone. |
| b | 231 | 187 | .35 | " " | 1246 | " " |
| 91 a | 184 | | | " " | | " ", shell. |
| b | 197 | 191 | .36 | " " | 1273 | " " " |
| 92 a | 83 | | | " " | | Fast growth on smaller quahogs. |
| b | 87 | 85 | .16 | " " | 566 | " " " " " |
| 93 a | 41 | | | " " | | Sea scallop shell. |
| b | 47 | 44 | .08 | " " | 293 | " " " |
| 94 a | 22 | | | " " | | Hung on cable, No tow. |
| b | 77 | | .14 | Hard sandy mud | 513 | |
| 95 a | 114 | | | Soft mud | | Netting in teeth. |
| b | 68 | 106 | .20 | " " | 760 | |
| 96 a | 131 | | | " " | | Small stone, shell. |
| b | 27 | 79 | .15 | " " | 526 | " " " |
| 97 a | 30 | | | " " | | " " , hung on cable. |
| | | | .06 | " " | 200 | " " |
| 98 a | 15 | | | " " | | Shell. |
| b | 118 | 67 | .12 | " " | 443 | Shell. |
| 99 a | 7 | | | " " | | |
| | | | .01 | " " | 46 | |
| 100 a | 6 | | | " " | | |
| b | 6 | 6 | .01 | " " | 40 | |

# SAMPLING STATION DATA

LOCATION: New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| 101 a | 24 | | | Soft mud | | Small stone. |
| b | 60 | 42 | .08 | " " | 280 | " " , shell. |
| 102 a | 6 | | | " " | | Sea scallop shell. |
| b | 7 | | | " " | | " hung on rope. |
| c | 15 | 10.5 | .02 | " " | 70 | " |
| 103 a | 4 | | | " " | | " small stone. |
| b | 31 | 18 | .03 | " " | 120 | " " |
| 104 a | 130 | | | Sandy mud | | Shell. |
| b | 282 | 206 | .54 | " " | 1373 | " |
| 105 a | 94 | | | Soft mud | | " small stone. |
| b | 160 | 127 | .24 | " " | 846 | " " " |
| 106 a | 75 | | | " " | | Large stones. |
| b | 43 | 59 | .11 | " " | 393 | |
| 107 a | 20 | | | " " | | Hung on cable. |
| 108 a | 29 | | | " " | | " " " |
| | | | .05 | | 193 | |
| 109 a | 5 | | | " " | | Sea scallop shell. |
| b | 10 | 8 | .02 | " " | 53 | " " " |
| 110 a | 98 | | | " " | | " " " |
| b | 11 | 55 | .11 | " " | 366 | " " " |
| 111 a | 37 | | | Sticky mud | 266 | Shell. |
| b | 44 | 40 | .07 | " " | | Hung on cable. |
| 112 a | 57 | | | Sandy mud | | Rope in teeth. |
| b | 11 | 57 | .10 | " " | 380 | " " " clogged, no tow. |

## SAMPLING STATION DATA

LOCATION: Inner New Bedford Harbor

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| I 1 a | 2 | | | Soft mud | | |
| b | 0 | 1 | | " " | 6.6 | |
| I 2 a | 0 | | | " " | 0 | Debris. |
| I 3 a | 0 | | | " " | 0 | " |
| I 4 a | 0 | | | " " | 0 | " and cable. |
| I 5 a | 33 | | | " " | | " " |
| b | 24 | 28.5 | .05 | " " | 190 | |
| I 6 a | 4 | | | " " | | " " |
| b | 28 | 16 | .03 | " " | 106 | |
| I 7 a | 29 | 29 | .05 | " " | 193 | Cable, net, rope, caught in teeth. |
| I 8 a | 98 | | | " " | | Debris. |
| b | 53 | 75 | .14 | " " | 500 | " |
| I 9 a | 100 | | | " " | | " - cable across teeth. |
| b | 77 | 88.5 | .16 | " " | 590 | " " " " |
| I 10 a | 109 | 109 | .20 | " " | 726 | " - milk box in teeth. |

# SAMPLING STATION DATA

LOCATION: Mount Hope Bay

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| F 1a | 16 | | | Soft mud | | 1 Channel whelk, 1 mantis shrimp. |
| b | 21 | 18.5 | .035 | " " | 123 | 3 " ". |
| F 2a | 33 | | | " " | | |
| b | 35 | 34 | .064 | " " | 226 | |
| F 3a | 28 | | | " " | | 1 Channel whelk, 2 mantis shrimp. |
| b | 62 | 45 | .085 | " " | 300 | |
| F 4a | 52 | | | " " | | |
| b | 32 | | | " " | | |
| F 4aa | 33 | 42.5 | .080 | " " | 283 | Old soft-clam shells. |
| bb | 39 | 35.5 | .067 | " " | 236 | Large rocks. |
| F 5a | 76 | | | " " | | |
| b | 73 | 74.5 | .141 | " " | 496 | |
| F 6a | 15 | | | " " | | 1 Channel whelk, 1 horseshoe crab. |
| b | 25 | 20 | .038 | " " | 133 | |
| F 7a | 23 | | | " " | | |
| b | 19 | 21 | .040 | " " | 140 | 1 Knobbed whelk, 1 spider crab. |
| F 8a | 14 | | | " " | | |
| b | 14 | 14 | .026 | " " | 93 | 1 Horseshoe crab. |
| F 9a | 20 | | | " " | | |
| b | 24 | 22 | .041 | " " | 146 | 1 Mantis shrimp, 1 spider crab (9S.). |
| F 10a | 22 | | | " " | | Soft-clam shells, rock. |
| b | 46 | 34 | .064 | " " | 226 | " " " , " |
| F 11a | 51 | | | " " | | " " " |
| b | 25 | 38 | .072 | " " | 253 | " " " , oyster shell, rocks. |

# SAMPLING STATION DATA

LOCATION: Mount Hope Bay

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| F 12a | 17 | | | Soft mud. | | Soft-clam shells, 2 spider crabs (9S.). |
| b | 21 | 19 | .036 | " " | 126 | " " " , 1 mantis shrimp, 1 C. whelk. |
| F 13a | 15 | | | " " | | 1 Channel whelk. |
| b | 20 | 17.5 | .033 | " " | 113 | 4 Mantis shrimp. |
| F 14a | 20 | | | " " | | Soft-clam shells, 2 mantis shrimp. |
| b | 24 | | | " " | | 2 Channel whelk, 2 mantis shrimp. |
| c | 28 | 24 | .045 | " " | 160 | Quahog shells, 1 mantis shrimp. |
| F 15a | 34 | | | " " | | " " , 2 " " |
| b | 21 | 27.5 | .052 | " " | 180 | 1 Horseshoe, 1 spider, 1 C. whelk, 1 mantis. |
| F 16a | 22 | | | " " | | Quahog shells, 1 horseshoe crab. |
| b | 14 | 18 | .034 | " " | 120 | Soft-clam and quahog shell, 1 blue mussel. |
| F 17a | 15 | | | " " | | Mixed shells. |
| b | 21 | 18 | .034 | " " | 120 | " " , 1 Channel whelk. |
| F 18a | 22 | | | " " | | Quahog shells, 1 spider crab (9S.). |
| b | 13 | 17.5 | .033 | " " | 113 | Quahog shells, 2 mantis, 1 moon snail. |
| F 19a | 21 | | | " " | | " " , 1 mantis, 1 C. whelk, 1 horseshoe |
| b | 16 | 18.5 | .035 | " " | 120 | " " , 6 mantis. |
| F 20a | 62 | | | " " | | Soft-clam shells, 2 mantis, 1 C. whelk. |
| b | 17 | 39.5 | .075 | " " | 260 | " " " , 1 horseshoe crab. |
| F 21a | 13 | | | " " | | " " " |
| b | 20 | 16.5 | .031 | " " | 110 | |
| F 22a | 19 | | | " " | | 1 Channel whelk. |
| b | 24 | 21.5 | .040 | " " | 143 | " " , soft-clam shells. |
| F 23a | 27 | | | Fine mud and clay | | 2 Channel whelk, 1 spider (9S.), Codium. |
| b | 22 | | | " " " " | | 1 Mantis shrimp. |
| c | 24 | 24.5 | .046 | " " " " | 163 | |

## SAMPLING STATION DATA

LOCATION: Mount Hope Bay

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| F 24a | 42 | | | Soft mud. | | |
| b | 14 | 28 | .053 | Fine mud & clay 1/4 bag | 186 | Soft-clam shells, 1 horseshoe crab. |
| F 25a | 4 | | | Sandy mud | | Mixed shells. |
| b | 4 | 4 | .007 | " " | 27 | " " , 1 horseshoe crab. |
| F 26a | 10 | | | Soft mud | | |
| b | 24 | 17 | .032 | " " | 113 | 1 Channel whelk. |
| F 27a | 30 | | | " " | | Quahog shells. |
| b | 19 | 24.5 | .046 | " " | 163 | " " , 2 horseshoe crabs. |
| F 28a | 14 | | | " " | | " " |
| b | 14 | 14 | .026 | " " | 93 | " " |
| F 29a | 26 | | | " " | | " " , 1 Channel whelk. |
| b | 23 | 24.5 | .046 | " " | 163 | " " |
| F 30a | 25 | | | " " | | " " |
| b | 18 | 21.5 | .040 | " " | 143 | Soft-clam shells. |
| F 31a | 17 | | | " " | | |
| b | 45 | 31.0 | .059 | " " | 207 | Large quahogs mostly blunts, 1 mantis. |
| F 32a | 15 | | | " " | | " " " " |
| b | 14 | 14.5 | .027 | " " | 97 | " " " " |
| F 33a | 65 | | | Hard sandy mud | | " " " " , boulders. |
| b | 52 | 58.5 | .111 | " " " | 390 | " " " " " |
| F 34a | 22 | | | " " " | | Quahog shells. |
| b | 23 | 22.5 | .042 | " " " | 150 | " " , soft-clam shells, 1 C. whelk. |
| F 35a | 18 | | | " " " | | Rocks. |
| b | 19 | 18.5 | .035 | " " " | 123 | " , 1 Channel whelk. |

# SAMPLING STATION DATA

LOCATION: Mount Hope Bay

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| F 36a | 21 | | | Soft mud | | Quahogs all sharps. |
| b | 16 | 18.5 | .035 | " " | 123 | " " " |
| F 37a | 30 | | | " " | | Large quahogs mostly blunts, 2 horseshoe crabs, 1 Channel whelk |
| b | 35 | 32.5 | .061 | " " | 216 | Small stones. |
| F 38a | 20 | | | " " | | 2 Horseshoe crabs, 1 Channel whelk. |
| b | 26 | | | " " | | 1 Mantis shrimp. |
| c | 18 | 21.5 | .040 | " " | 143 | Rocks. |
| F 39a | 29 | | | " " | | |
| b | 24 | 26.5 | .050 | " " | 177 | Quahog shells. |
| F 40a | 11 | | | " " | | Quahog shells, 1 mantis, 1/2 sharps. |
| b | 12 | 11.5 | .021 | " " | 77 | " " , " , 1/2 blunts. |
| F 41a | 14 | | | Hard sandy mud | | Soft-clam shells. |
| b | 18 | 16 | .030 | " " " | 107 | " " " |
| F 42a | 27 | | | Soft sticky mud | | 1 Mantis shrimp, 1 moon snail. |
| b | 17 | 22 | .041 | " " " | 147 | 1 Channel whelk, 1/2 blunts. |
| F 43a | 15 | | | Soft mud | | Soft-clam shells, 1 mantis shrimp. |
| b | 24 | 19.5 | .037 | " " | 130 | " " " , 2 Channel whelks, 1/2 sharps & 1/2 blunts (large). |
| F 44a | 16 | | | " " | | Soft-clam shells, 75% blunts. |
| b | 12 | 14 | .026 | " " | 93 | " " " , 2 C. whelks, 50% blunts. |
| F 45a | 19 | | | " " | | All blunts, soft-clam shells. |
| b | 9 | 14 | .026 | " " | 93 | 1 Channel whelk and 1 knobbed whelk. |
| F 46a | 17 | | | " " | | Soft-clam shells, large all blunts. |
| b | 11 | 14 | .026 | " " | 93 | Codium, 1 mantis, 2 C. whelk, 1 knobbed whelk. |

# SAMPLING STATION DATA

LOCATION: Mount Hope Bay

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| F 47a | 50 | | | " " | | Soft-clam shell and stone. |
| b | 20 | 35 | .066 | " " | 233 | 1/2 blunts, 2 C. whelks, 1 *Asterias* sp. |
| F 48a | 6 | | | Hard sandy mud | | 1/2 tow - hung up, sharps. |
| F 49a | 45 | | | Soft mud | | Large 50% blunts. |
| b | 34 | 39.5 | .075 | " " | 263 | Mediums 75% sharps. |
| F 50a | 52 | | | " " | | Large 50% blunts. |
| b | 40 | 46 | .087 | " " | 307 | Mediums 75% sharps. |
| F 51a | 53 | | | Soft sticky mud | | Large 50% blunts. |
| b | 40 | 46.5 | .088 | " " " | 310 | 1 Horseshoe crab, 1 Channel whelk. |
| F 52a | 55 | | | " " " | | Large 50% blunts. |
| b | 43 | 49 | .093 | " " " | 327 | 1/2 bag of *Ulva* (sea lettuce). |
| F 53a | 93 | | | " " " | | Large 45% blunts, soft-clam shells. |
| b | 58 | 75.5 | .143 | " " " | 503 | " " " " " " " , 1 C. whelk. |
| F 54a | 45 | | | Soft mud. | | Large 50% blunts. |
| b | 83 | 64 | .121 | " " | 427 | " " " |
| F 55a | 40 | | | " " | | " " " |
| b | 36 | 38 | .072 | " " | 253 | " " " |
| F 56 | 106* | | .034 | " " | 120 | * 5 min. tow. |
| F 57 | 107* | | .034 | " " | 120 | * 5 min. tow, 1 Channel whelk. |
| F 58 | 150* | | .047 | " " | 166 | * 5 min. tow, soft-clam shells. |
| F 59a | 59 | | | " " | | Large mostly blunts, soft-clam shells. |
| b | 33 | 46 | .087 | Hard sandy mud | 307 | " " " " " " |
| F 60a | 30 | | | " " " | | 1 Channel whelk, soft-clam shells. |
| b | 22 | 26 | .049 | Soft mud | 173 | 17 Spider crabs (9S.), soft-clam shells. |

## SAMPLING STATION DAT

LOCATION: Mount Hope Bay

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| F 61a | 23 | | | Hard sandy mud | | Large mostly blunts. |
| b | 54 | 38.5 | .073 | " " " | 257 | " " " |
| F 62a | 96 | | | " " " | | " " " |
| b | 79 | 87.5 | .166 | " " " | 583 | " " " |
| F 63a | 67 | | | " " " | | " " " |
| b | 115 | 91 | .173 | " " " | 607 | " " " |

## SAMPLING STATION DATA

LOCATION: Taunton River

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| TR 1 a | 23 | * 24/27 | .05 | Soft black mud | 180 | Small stones, Channel whelk, mantis shrimp. |
| b | 25 | | | " " " | | " & large stones. |
| TR 2 a | 7 | * 6/7 | .01 | " " " | 46 | In channel, bag full of leaves. |
| b | 5 | | | " " " | | " " " " " " |
| TR 3 a | 16 | * 9/10 | .02 | " " " | 66 | Eel, leaves, old soft shell clam shells. |
| b | 2 | | | " " " | | Bag full of more eel, leaves, old oyster shells. |
| TR 4 a | 62 | * 40/45 | .08 | " " " | 300 | Old soft-shell clams shell. |
| b | 17 | | | " " " | | " " " " " bag full of mud. |
| TR 5 a | 0 | * 6/7 | .01 | " " " | 46 | Bag full of leaves, Mulinia lateralis. |
| b | 12 | | | " " " | | Old oyster shells. |
| TR 6 a | 1 | 3 | .01 | Hard sandy mud | 20 | Bag full of leaves & soft mud. |
| b | 4 | | | " " " | | " " " " " " " oyster shells. |
| TR 7 a | 0 | 0 | | Soft brown mud | 0 | Oyster shells. |
| b | 0 | | | " " " | | Leaves. |
| TR 8 a | 13 | 15 | .02 | " sandy " | 100 | Grounded at end of tow.<br>Small stone & shell. |
| TR 9 a | 19 | * 19/14 | .02 | Soft sandy mud | 93 | Stone, debris. |
| b | 18 | | | " " " | | Stones. |
| TR10 a | 5 | 3 | .005 | Hard sandy mud | 20 | Stone, spider and horseshoe crabs. |
| b | 0 | | | " " " | | " , old oyster shell. |
| TR11 a | 4 | 10 | .02 | Soft black mud | 66 | Leaves, debris. |
| b | 15 | | | " " " | | " " , center of channel. |
| TR12 a | 6 | 9 | .02 | " " " | 73 | Large rocks, leaves, horseshoe crabs. |
| b | 11 | | | " " " | | " " |

* Adjusted for time vs. distance due to river current.

## SAMPLING STATION DATA

LOCATION: Taunton River

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| TR 13 a | 1 | * 3/2 | .005 | Soft black mud | 13 | Debris, center channel. |
| b | 4 | | | " " " | | " |
| TR 14 a | 4 | * 15/11 | .02 | " " " | 73 | Bag full of silt. |
| b | 26 | | | " " " | | " " " " |
| TR 15 a | 4 | * 11/12 | .02 | Silt on sandy mud | 80 | Shell |
| b | 18 | | | " " " " | | Debris, stone. |
| TR 16 a | 8 | * 9/10 | .02 | Soft black mud | 66 | Old oyster shell, cable in teeth. |
| b | 10 | | | " " " | | " " " , blue mussels, spider crabs. |
| TR 17 a | 15 | * 17/12 | .01 | Hard sandy mud | 80 | Oyster shell, stone, C. whelk. |
| b | 19 | | | " " " | | Stone, horseshoe crabs. |
| TR 18 a | 13 | * 23/17 | .03 | " " " | 113 | " |
| b | 33 | | | " " " | | " |
| TR 19 a | 12 | * 7/8 | .01 | " " " | 53 | " , old oyster shells, blue mussels. |
| b | 1 | | | " " " | | " " |
| TR 20 a | 61 | * 77/55 | .1 | Soft black mud | 367 | " , in channel. |
| b | 92 | | | " " " | | " , east of channel. |
| TR 21 a | 5 | * 7/8 | .01 | Soft sticky mud | 53 | " , spider & horseshoe crabs. |
| b | 9 | | | " " " | | " |
| TR 22 a | 83 | * 135/98 | .18 | Hard sandy mud | 653 | " Crepidula. |
| b | 186 | | | " " " | | " (1 bu.) |
| TR 23 a | 4 | * 6/7 | .01 | Soft black mud | 46 | Stone, mixed old shell. |
| b | 8 | | | " " " | | " " " " |
| TR 24 a | 16 | * 17/12 | .02 | " " " | 80 | " C. whelks, mantis shrimp. |
| b | 18 | | | " " " | | " " , " |

* Adjusted for time vs. distance due to river current.

# SAMPLING STATION DATA

LOCATION: Taunton River

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| TR 25 a | 13 | * | | Soft black mud | | Old oyster and soft clam shells. |
| b | 31 | 22/25 | .04 | " " " | 166 | " " " " " " |
| TR 26 a | 12 | * | | Hard sandy mud | | Stone (1 bu) C. whelks, horseshoe crabs. |
| b | 10 | 11/8 | .01 | " " " | 53 | " " " mussels. |
| TR 27 a | 38 | * | | Soft black mud | | |
| b | 107 | 73/82 | .15 | " " " | 547 | Mixed old shells. |
| TR 28 a | 24 | | | " " " | | Horseshoe crab. |
| b | 40 | 32 | .06 | " " " | 213 | |
| TR 29 a | 44 | | | " " " | | Stone. |
| b | 28 | 36 | .07 | " " " | 240 | Mixed old shells. |
| TR 30 a | 10 | | | Soft sticky mud | | Stone, in channel. |
| b | 12 | 11 | .02 | " " " | 73 | " " " |
| TR 31 a | 12 | | | " " " | | Debris, C. Whelks. |
| b | 8 | 10 | .02 | " " " | 66 | |
| TR 32 a | 11 | | | Soft black mud | | Bag full soft clam shells. |
| b | 48 | 30 | .06 | " " " | 200 | |
| TR 33 a | 13 | | | " " " | | In channel C. whelk. |
| b | 18 | 16 | .03 | " " " | 106 | " ", horseshoe crabs. |
| TR 34 a | 14 | | | Hard sandy mud | | |
| b | 55 | 35 | .07 | " " " | 233 | |
| TR 35 a | 6 | | | Soft sticky mud | | C. whelk. |
| b | 12 | 9 | .02 | " " " | 60 | Stones. |
| TR 36 a | 0 | | | " " " | | Horseshoe crabs |
| b | 0 | 0 | | " " " | 0 | " " |

* Adjusted for time vs. distance due to river current.

# SAMPLING STATION DATA

LOCATION: Taunton River

| STA. # | #/TOW | AVE./TOW | #/FT$^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| TR 37 a | 68 | | | Hard sandy mud | | Inshore of #20, 8' deep. |
| b | 176 | 122 | .23 | " " " | 813 | |
| TR 38 a | 3 | | .005 | Soft sticky mud | 20 | East of #21 in channel, 33' deep. |
| TR 39 a | 7 | | | Soft mud | | Shell, stone, 14' deep, off stone pier. |
| b | 49 | 28 | .05 | " " | 186 | " , " , " " , " " " |
| TR 40 a | 5 | | | Soft mud, peat | | West side flat, opp. "C3", 14' deep. |
| b | 6 | 6 | .01 | " " , " | 40 | " " " , " " , " " |
| TR 41 a | 9 | | | Soft sandy mud | | |
| b | 13 | 11 | .02 | " " " | 73 | Medium-large stone. |
| TR 42 a | 35 | | | Sandy mud | | " " " , 21' deep. |
| b | 20 | 28 | .05 | " " | 186 | 1 Horseshoe crab, stone, 21'deep.<br>edge of flat, slope of channel |
| TR 43 a | 66 | | | Soft sticky mud | | |
| b | 46 | 56 | .11 | " " " | 373 | Oysters & clam shell, both tows. |
| TR 44 a | 70 | | | Sandy mud | | Edge of flat off Pierces Beach, C. whelk. |
| b | 88 | 79 | .15 | " " | 527 | " " " " " " . |
| TR 45 a | 36 | | | Soft mud | | Old soft clam shells, 9' deep. |
| b | 28 | 32 | .06 | " " | 213 | " " " " . " " |
| TR 46 a | 33 | | | Soft mud | | South side Breed's Cove from "C1A" |
| b | 35 | 34 | .06 | " " | 226 | old soft clam shell, stone, 15' deep, both tows |
| TR 47 a | 71 | | | Soft mud | | " " " " , " , 7' " , " " |
| b | 88 | 80 | .15 | " " | 533 | " " " " , " , " " |
| TR 48 a | 33 | | | Soft mud | | " " " " , 8' deep. |
| b | 55 | 44 | .08 | " " | 293 | " " " " , " " |
| TR 49 a | 71 | | | Soft mud | | 12-15' deep. |
| b | 82 | 77 | .15 | " " | 513 | " " " |

## SAMPLING STATION DATA

LOCATION: Taunton River

| STA. # | #/TOW | AVE./TOW | $\#/FT^2$ | BOTTOM TYPE | Adjusted Est. # of tow | REMARKS |
|---|---|---|---|---|---|---|
| TR 50 a | 15 | | | Soft mud | | North of "C1A", in channel. |
| b | 26 | 21 | .04 | " " | 140 | " " " , " " |
| TR 51 a | 135 | | | Hard sandy mud | | Stone, oyster shell. |
| b | 85 | 110 | .21 | " " " | 733 | " , " " |
| TR 52 a | 3 | | | Soft mud | | Oyster shell, small stone. |
| b | 7 | 5 | .01 | " " | 33 | " " , " " |
| TR 53 a | 2 | | | " " | | 1 C. whelk, 1 horseshoe crab. |
| b | 0 | 1 | .001 | " " | 2 | Small stone. |
| TR 54 a | 2 | | | " " | | In channel north of "C17". |
| b | 0 | 1 | .001 | " " | 2 | " " " " " |
| TR 55 a | 0 | | | " " | | " " south " " |
| b | 0 | 0 | | " " | 0 | 8 starfish, 2 C. whelks. |
| TR 56 a | 4 | | | Soft sticky mud | | In channel, starfish. |
| b | 2 | 3 | .005 | " " " | 4 | " " , " |
| TR 57 a | 2 | | | " " " | | " " , " |
| b | 0 | 1 | .002 | " " " | 2 | " " , " |
| R 58 a | 1 | | | " " " | | " " , " |
| b | 0 | 1 | .002 | " " " | 2 | " " , " , 1 bu. spider crabs. |
| R 59 a | 1 | | | " " " | | In channel, 2 spider crabs. |
| b | 0 | 1 | .002 | " " " | 2 | " " , " " " |
| R 60 a | 0 | | | " " " | | Spider crabs, 1 mantis shrimp. |
| b | 1 | 1 | .002 | " " " | 2 | " " " " " |
| R 61 a | 69 | | | " " black | | Some blunts. |
| b | 22 | 46 | .09 | " " " | 306 | " " |
| R 62 a | 12 | | | " " " | | " " |
| b | 16 | 14 | .03 | " " " | 93 | " " |

LENGTH - FREQUENCY

LOCATION: Clarks Cove

| STATION NO. | SEED < 1" |  | JUVENILE 1-2" |  | LITTLENECK 2-2 1/4" |  | CHERRYSTONE 2 1/4"-2 3/4" |  | CHOWDER > 2 3/4" |  | TOTALS |  | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught |  |
| C 21 |  |  | 0.5 | 1 | 2.0 | 4 | 12.5 | 23 | 39.0 | 72 | 49/59 | 108 | 2 |
| C 22 |  |  | 15.5 | 6 | 21.0 | 8 | 112.5 | 43 | 112.5 | 43 | 105* | 523 | 2 |
| C 23 |  |  | 4.5 | 3 | 10.5 | 7 | 72.5 | 48 | 63.5 | 42 | 118* | 302 | 2 |
| C 24 |  |  | 1.0 | 1 | 5.0 | 5 | 41.0 | 40 | 55.0 | 54 | 133 | 204 | 2 |
| C 25 |  |  | 12.5 | 6 | 31.0 | 15 | 77.0 | 37 | 87.5 | 42 | 144* | 416 | 2 |
| C 26 |  |  | 4.5 | 4 | 4.5 | 4 | 24.5 | 22 | 78.5 | 70 | 112 | 112 | 1 |
| C 27 |  |  | 2.0 | 1 | 3.0 | 2 | 60.0 | 33 | 116.0 | 64 | 181 | 181 | 1 |
| C 28 |  |  | 2.0 | 3 | 4.0 | 6 | 33.0 | 47 | 31.0 | 44 | 127 | 141 | 2 |
| C 29 |  |  | 1.0 | 4 | 3.0 | 11 | 11.0 | 39 | 13.0 | 46 | 28 | 28 | 1 |
| C 30 |  |  | 1.0 | 1 | 3.0 | 4 | 26.0 | 39 | 37.5 | 56 | 67/68 | 135 | 2 |
| C 31 |  |  | 3.0 | 2 | 5.5 | 4 | 55.0 | 40 | 75.0 | 54 | 128* | 277 | 2 |
| C 32 |  |  |  |  | 1.0 | 3 | 6.0 | 24 | 18.0 | 73 | 30 | 75 | 3 |
| C 33 |  |  | 2.0 | 1 | 8.0 | 4 | 65.0 | 34 | 117.0 | 61 | 165 | 384 | 2 |
| C 34 |  |  | 2.0 | 1 | 9.0 | 5 | 71.0 | 40 | 97.0 | 54 | 173 | 358 | 2 |
| C 35 |  |  | 4.0 | 3 | 4.0 | 3 | 51.0 | 40 | 68.5 | 54 | 147 | 255 | 2 |
| C 36 |  |  |  |  | 6.0 | 4 | 36.0 | 25 | 102.0 | 71 | 108 | 288 | 2 |
| C 37 |  |  |  |  |  |  | 2.0 | 25 | 6.0 | 75 | 8 | 8 | 1 |
| C 38 |  |  | 3.0 | 4 | 1.5 | 2 | 20.5 | 26 | 54.0 | 68 | 98 | 158 | 2 |
| C 39 |  |  |  |  | 0.5 | 1 | 22.0 | 45 | 27.0 | 54 | 74 | 99 | 2 |
| C 40 |  |  | 2.0 | 11 |  |  | 12.5 | 78 | 2.0 | 11 | 9 | 33 | 2 |
| C 41 |  |  |  |  |  |  | 4.0 | 12 | 30.0 | 88 | 34 | 34 | 1 |

* Portion of tow measured only.

LENGTH - FREQUENCY

LOCATION: Clarks Cove

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| C 1 | | | 1.0 | 1 | 1.5 | 2 | 9.0 | 12 | 64.0 | 85 | 56/95 | 151 | 2 |
| C 2 | | | 2.0 | 2 | 2.0 | 2 | 12.0 | 14 | 72.0 | 82 | 100/76 | 176 | 2 |
| C 3 | | | 4.0 | 2 | 4.0 | 2 | 43.5 | 20 | 163.5 | 76 | 215 | 215 | 1 |
| C 4 | | | 3.5 | 2 | 5.0 | 3 | 15.5 | 9 | 149.0 | 86 | 116 | 346 | 2 |
| C 5 | | | 4.0 | 2 | 8.5 | 4 | 58.0 | 27 | 144.0 | 67 | 197 | 430 | 2 |
| C 6 | | | 2.0 | 1 | 11.0 | 6 | 57.0 | 30 | 120.0 | 63 | 87* | 190 | 1 |
| C 7 | | | 8.0 | 4 | 23.0 | 11 | 108.0 | 52 | 69.0 | 33 | 130* | 416 | 2 |
| C 8 | | | 3.5 | 2 | 9.0 | 5 | 74.0 | 43 | 86.0 | 50 | 116* | 345 | 2 |
| C 9 | | | 5.0 | 4 | 11.0 | 9 | 66.5 | 53 | 43.0 | 34 | 76 | 251 | 2 |
| C 10 | | | | | 6.0 | 3 | 85.0 | 44 | 102.5 | 53 | 105 | 387 | 2 |
| C 11 | | | 2.0 | 1 | 7.0 | 4 | 77.0 | 43 | 93.0 | 52 | 220 | 358 | 2 |
| C 12 | | | 1.0 | 1 | 6.0 | 4 | 52.0 | 37 | 81.0 | 58 | 163 | 280 | 2 |
| C 13 | | | 4.5 | 3 | 11.5 | 8 | 45.0 | 31 | 85.0 | 58 | 137 | 292 | 2 |
| C 14 | | | 2.0 | 1 | 4.0 | 3 | 45.5 | 32 | 91.0 | 64 | 137 | 285 | 2 |
| C 15 | | | 3.0 | 4 | 1.5 | 2 | 11.0 | 16 | 52.0 | 78 | 49/84 | 133 | 2 |
| C 16 | | | 3.0 | 3 | 3.0 | 3 | 23.5 | 22 | 76.5 | 72 | 106 | 106 | 1 |
| C 17 | | | 4.0 | 4 | 5.0 | 5 | 18.5 | 18 | 101.5 | 73 | 139 | 139 | 1 |
| C 18 | | | 1.0 | 1 | 2.0 | 2 | 23.0 | 22 | 79.0 | 75 | 53/157 | 210 | 2 |
| C 19 | | | 5.0 | 2 | 5.0 | 2 | 96.5 | 41 | 129.5 | 55 | 121* | 471 | 2 |
| C 20 | count only | | | | | | | | | | | 469 | 2 |

* Portion of tow measured only.

# LENGTH - FREQUENCY

LOCATION: Clarks Cove

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| C 42 | | | 2.5 | 5 | 1.0 | 2 | 11.0 | 19 | 41.5 | 74 | 96 | 112 | 2 |
| C 43 | Count only | | | | | | | | | | | 132 | 1 |
| C 44 | | | 5.0 | 3 | 8.0 | 5 | 65.0 | 40 | 84.0 | 52 | 322 | 322 | 2 |
| C 45 | | | | | | | 2.0 | 29 | 5.0 | 71 | 7 | 7 | 1 |
| C 46 | | | | | | | 3.0 | 15 | 17.0 | 85 | 20 | 20 | 1 |
| C 47 | | | | | 1.0 | 9 | 2.0 | 18 | 8.0 | 73 | 11 | 11 | 1 |
| C 48 | | | | | | | 4.0 | 21 | 15.0 | 79 | 24/14 | 38 | 2 |
| C 49 | | | | | 1.5 | 2 | 13.5 | 19 | 55.5 | 79 | 83 | 141 | 2 |
| C 50 | | | | | 2.0 | 3 | 11.0 | 19 | 46.5 | 78 | 36 | 119 | 2 |
| C 51 | | | 1.5 | 4 | 0.5 | 2 | 4.0 | 13 | 27.0 | 81 | 46 | 66 | 2 |
| C 52 | | | | | | | 2.0 | 8 | 22.5 | 92 | 19/30 | 49 | 2 |
| C 53 | | | 1.0 | 2 | | | 3.0 | 7 | 39.5 | 91 | 44 | 87 | 2 |
| C 54 | | | 1.0 | 2 | 4.5 | 9 | 22.5 | 44 | 23.0 | 45 | 11/91 | 102 | 2 |
| C 55 | | | 0.5 | 5 | 0.5 | 5 | 3.5 | 35 | 5.5 | 55 | 13/7 | 20 | 2 |
| C 56 | | | | | 7.0 | 6 | 64.5 | 55 | 46.0 | 39 | 62 | 235 | 2 |
| C 57 | | | | | 14.0 | 16 | 42.5 | 48 | 31.5 | 36 | 58 | 176 | 2 |
| C 58 | | | 8.1 | 9 | 13.5 | 15 | 40.5 | 45 | 28.0 | 31 | 146 | 180 | 2 |
| C 59 | | | | | | | | | 8 | 100 | 4 | 16 | 2 |
| C 60 | | | | | 3.0 | 13 | 5.0 | 25 | 13.0 | 62 | 24 | 42 | 2 |
| C 61 | | | 2.0 | 2 | 2.0 | 2 | 43.0 | 40 | 60.5 | 56 | 129 | 215 | 2 |
| C 62 | | | 16.0 | 7 | 16.0 | 7 | 83.0 | 37 | 110.0 | 49 | 220 | 450 | 2 |
| C 63 | | | 4.0 | 3 | 10.0 | 7 | 57.5 | 40 | 71.5 | 50 | 127 | 286 | 2 |

* Portion of tow measured only.

## LENGTH - FREQUENCY

LOCATION: New Bedford Harbor

| STATION NO. | SEED < 1" |  | JUVENILE 1-2" |  | LITTLENECK 2-2 1/4" |  | CHERRYSTONE 2 1/4"-2 3/4" |  | CHOWDER > 2 3/4" |  | TOTALS |  | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught |  |
| 1 |  |  | 11.0 | 7 | 8.0 | 5 | 41.0 | 26 | 97.5 | 62 | 144/171 | 315 | 2 |
| 2 |  |  | 0.5 | 1 |  |  | 15.0 | 32 | 31.0 | 67 | 44/49 | 93 | 2 |
| 3 |  |  | 5.0 | 6 | 3.5 | 4 | 26.0 | 30 | 51.5 | 60 | 46/126 | 172 | 2 |
| 4 |  |  | 3.0 | 4 | 3.0 | 4 | 19.0 | 27 | 46.0 | 65 | 58/84 | 142 | 2 |
| 5 |  |  | 13.0 | 10 | 5.0 | 4 | 39.5 | 30 | 73.0 | 56 | 104 | 261 | 2 |
| 6 |  |  | 1.5 | 1 | 17.5 | 12 | 46.0 | 32 | 79.5 | 55 | 84 | 289 | 2 |
| 7 | 2.0 | 1 | 16.0 | 8 | 12.0 | 6 | 75.5 | 38 | 93.0 | 47 | 202 | 397 | 2 |
| 8 |  |  | 6.0 | 4 | 3.0 | 2 | 48.0 | 32 | 92.0 | 62 | 149 | 149 | 1 |
| 9 |  |  | 2.0 | 4 | 1.5 | 3 | 10.5 | 21 | 36.0 | 72 | 41/59 | 100 | 2 |
| 10 |  |  | 3.0 | 3 | 7.0 | 8 | 27.0 | 30 | 54.0 | 59 | 91 | 91 | 1 |
| 11 |  |  |  |  |  |  | 8.0 | 23 | 27.0 | 77 | 48/22 | 70 | 2 |
| 12 | 0.5 | 2 |  |  | 1.0 | 3 | 5.5 | 18 | 23.0 | 77 | 26/34 | 60 | 2 |
| 13 |  |  |  |  | 0.5 | 13 | 1.0 | 25 | 2.5 | 62 | 7/1 | 8 | 2 |
| 14 |  |  | 0.5 | 5 | 1.0 | 11 | 2.5 | 28 | 5.0 | 56 | 15/3 | 18 | 2 |
| 15 | 0.5 | 3 | 0.5 | 3 | 0.5 | 3 | 3.0 | 18 | 12.5 | 73 | 9/25 | 34 | 2 |
| 16 |  |  |  |  |  |  | 1.0 | 25 | 3.0 | 75 | 4 | 4 | 1 |
| 17 |  |  |  |  | 0.5 | 2 | 7.5 | 35 | 13.5 | 63 | 17/26 | 43 | 2 |
| 18 |  |  |  |  |  |  | 22.5 | 22 | 79.0 | 78 | 79 | 203 | 2 |
| 19 |  |  |  |  |  |  | 28.5 | 40 | 99.0 | 60 | 78* | 255 | 2 |
| 20 |  |  | 1.0 | 1 | 1.0 | 1 | 25.0 | 29 | 59.0 | 69 | 80 | 172 | 2 |

LENGTH - FREQUENCY

LOCATION: New Bedford Harbor

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4 - 2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| 21 | | | 1.0 | 2 | 1.0 | 2 | 24.0 | 44 | 28.5 | 52 | 9/100 | 109 | 2 |
| 22 | | | 0.5 | 1 | 6.0 | 7 | 48.0 | 55 | 32.0 | 37 | 115 | 173 | 2 |
| 23 | | | 4.5 | 5 | 6.0 | 7 | 47.5 | 53 | 31.5 | 35 | 150 | 178 | 2 |
| 24 | | | 9.0 | 5 | 9.0 | 5 | 96.0 | 55 | 61.5 | 35 | 133 | 351 | 2 |
| 25 | | | | | 1.5 | 6 | 19.5 | 76 | 4.5 | 18 | 35/16 | 51 | 2 |
| 26 | | | 1.5 | 2 | 3.0 | 4 | 23.5 | 32 | 46.0 | 62 | 69 | 148 | 2 |
| 27 | | | 0.5 | 2 | 1.0 | 4 | 5.5 | 24 | 16.5 | 70 | 46 | 47 | 2 |
| 28 | | | | | | | 5.5 | 31 | 12.5 | 69 | 13 | 36 | 2 |
| 29 | | | | | | | 47.5 | 63 | 28.0 | 37 | 27 | 151 | 2 |
| 30 | | | | | 4.0 | 4 | 35.0 | 36 | 59.0 | 60 | 73 | 196 | 2 |
| 31 | | | 2.0 | 10 | | | 1.5 | 8 | 15.5 | 82 | 13/25 | 38 | 2 |
| 32 | 0.5 | 3 | 1.0 | 6 | | | 0.5 | 3 | 15.5 | 88 | 17/18 | 35 | 2 |
| 33 | | | | | | | | | 22.0 | 100 | 22 | 22 | 1 |
| 34 | | | 1.0 | 6 | | | | | 14.5 | 94 | 11/20 | 31 | 2 |
| 35 | | | 1.0 | 2 | | | | | 44.5 | 98 | 39/52 | 91 | 2 |
| 36 | | | | | 0.5 | 2 | 3.0 | 12 | 20.5 | 86 | 38/10 | 48 | 2 |
| 36A | | | | | | | 0.5 | 2 | 31.5 | 98 | 17/47 | 64 | 2 |
| 37 | | | 2.0 | 8 | 1.0 | 4 | 7.0 | 28 | 14.0 | 60 | 19/29 | 48 | 2 |
| 38 | | | 1.0 | 1 | 5.0 | 5 | 38.5 | 38 | 56.5 | 56 | 101 | 101 | 1 |
| 39 | | | | | | | 4.0 | 8 | 43.0 | 92 | 13 | 94 | 2 |

## LENGTH - FREQUENCY

LOCATION: New Bedford Harbor

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| 40 | | | 2.0 | 3 | | | 12.5 | 18 | 55.0 | 79 | 89 | 139 | 2 |
| 41 | | | 4.0 | 9 | 1.0 | 2 | 2.0 | 5 | 35.0 | 84 | 44 | 84 | 2 |
| 42 | 0.5 | 17 | | | | | | | 1.5 | 83 | 1/5/0 | 6 | 3 |
| 43 | | | 1.0 | 1 | 5.0 | 5 | 31.0 | 29 | 68.0 | 64 | 0/143 | 211 | 2 |
| 44 | 3.5 | 2 | 22.5 | 13 | 8.5 | 5 | 54.0 | 31 | 85.0 | 49 | 221 | 347 | 2 |
| 45 | 1.5 | 1 | 14.0 | 8 | 10.0 | 6 | 64.0 | 38 | 79.0 | 47 | 203 | 336 | 2 |
| 46 | | | 4.0 | 10 | 2.0 | 5 | 14.5 | 35 | 21.0 | 50 | 66 | 83 | 2 |
| 47 | 1.5 | 1 | 3.5 | 3 | 6.0 | 5 | 32.5 | 27 | 77.5 | 64 | 100 | 242 | 2 |
| 48 | 0.5 | 2 | 2.5 | 7 | 0.5 | 2 | 12.0 | 30 | 23.0 | 59 | 56 | 77 | 2 |
| 49 | | | | | | | | | 2.0 | 100 | 1 | 4 | 2 |
| 50 | | | 3.0 | 5 | 4.0 | 6 | 28.0 | 44 | 28.0 | 45 | 94 | 126 | 2 |
| 51 | | | | | | | | | | | | 5 | 2 |
| 52 | | | 7.0 | 11 | 5.0 | 7 | 29.5 | 44 | 25.5 | 38 | 86 | 134 | 2 |
| 53 | | | 5.0 | 4 | 13.0 | 11 | 43.0 | 36 | 59.0 | 49 | 108 | 240 | 2 |
| 54 | 1.0 | 2 | 3.0 | 6 | 3.0 | 6 | 21.0 | 44 | 15.5 | 32 | 45 | 95 | 2 |
| 55 | | | 0.5 | 3 | | | 7.5 | 43 | 9.5 | 54 | 2/33 | 35 | 2 |
| 56 | | | 2.5 | 2 | 12.0 | 9 | 57.0 | 43 | 61.0 | 46 | 174/91 | 265 | 2 |
| 57 | | | | | 2.0 | 17 | 4.0 | 33 | 6.0 | 50 | 12 | 12 | 1 |
| 58 | | | 1.0 | 2 | 2.0 | 5 | 18.0 | 46 | 18.0 | 47 | 61 | 78 | 2 |
| 59 | | | 3.5 | 4 | 1.0 | 1 | 28.0 | 33 | 53.0 | 62 | 92 | 171 | 2 |

LENGTH - FREQUENCY

LOCATION: New Bedford Harbor

| STATION NO. | SEED < 1" |  | JUVENILE 1-2" |  | LITTLENECK 2-2 1/4" |  | CHERRYSTONE 2 1/4"-2 3/4" |  | CHOWDER > 2 3/4" |  | TOTALS |  | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught |  |
| 60 |  |  | 1.5 | 2 | 1.0 | 1 | 18.5 | 30 | 41.0 | 67 | 94 | 123 | 2 |
| 61 |  |  | 6.5 | 7 | 1.0 | 1 | 44.0 | 49 | 39.0 | 43 | 90 | 181 | 2 |
| 62 |  |  | 4.5 | 3 | 7.0 | 5 | 55.0 | 39 | 74.5 | 53 | 120 | 282 | 2 |
| 63 |  |  | 6.5 | 6 | 6.5 | 6 | 57.0 | 52 | 39.0 | 36 | 73 | 218 | 2 |
| 64 | 1.0 | 1 | 5.5 | 5 | 3.0 | 3 | 35.0 | 33 | 61.0 | 58 | 81 | 211 | 2 |
| 65 | 1.0 | 2 | 1.0 | 2 | 1.0 | 2 | 19.5 | 36 | 31.0 | 58 | 56 | 107 | 2 |
| 66 |  |  | 3.0 | 3 | 6.0 | 6 | 49.0 | 49 | 42.0 | 42 | 79 | 200 | 2 |
| 67 |  |  | 2.5 | 2 | 2.5 | 2 | 50.0 | 44 | 59.0 | 52 | 70 | 228 | 2 |
| 68 |  |  |  |  |  |  | 12.5 | 22 | 43.0 | 78 | 9 | 167 | 3 |
| 69 |  |  |  |  |  |  | 16.5 | 34 | 33.0 | 66 | 38 | 99 | 2 |
| 70 |  |  |  |  | 1.0 | 3 | 27.0 | 60 | 17.0 | 37 | 70 | 90 | 2 |
| 71 |  |  |  |  | 1.0 | 1 | 28 | 44 | 35.0 | 55 | 97 | 128 | 2 |
| 72 | 4.5 | 1 | 27.0 | 6 | 22.0 | 5 | 272.0 | 61 | 120.0 | 27 | 175 | 891 | 2 |
| 73 |  |  | 5.0 | 5 | 2.0 | 2 | 36.0 | 34 | 62.0 | 59 | 105 | 105 | 1 |
| 74 |  |  | 2.0 | 6 |  |  | 7.0 | 21 | 24.0 | 73 | 33 | 33 | 1 |
| 75 |  |  | 18.0 | 24 | 12.0 | 16 | 38.0 | 51 | 7.0 | 9 | 75 | 75 | 1 |
| 76 | 1 | 6 |  |  |  |  | 12 | 70 | 4 | 24 | 17 | 17 | 1 |
| 77 |  |  |  |  |  |  | 7 | 58 | 5 | 42 | 12 | 12 | 1 |
| 78 |  |  | 1.0 | 1 | 2.0 | 2 | 31.0 | 35 | 55.5 | 62 | 96 | 179 | 2 |
| 79 |  |  |  |  |  |  | 1.0 | 9 | 12.0 | 91 | 22 | 26 | 2 |

LENGTH - FREQUENCY

LOCATION: New Bedford Harbor

| STATION NO. | SEED < 1" Average No. per Tow | SEED < 1" % | JUVENILE 1-2" Average No. per Tow | JUVENILE 1-2" % | LITTLENECK 2-2 1/4" Average No. per Tow | LITTLENECK 2-2 1/4" % | CHERRYSTONE 2 1/4"-2 3/4" Average No. per Tow | CHERRYSTONE 2 1/4"-2 3/4" % | CHOWDER > 2 3/4" Average No. per Tow | CHOWDER > 2 3/4" % | TOTALS Quahogs measured | Quahogs caught | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | | | | | | | 1.5 | 30 | 3.5 | 70 | 1/9 | 10 | 2 |
| 81 | | | | | | | 1.0 | 50 | 1.0 | 50 | 2 | 3 | 2 |
| 82 | | | | | 0.5 | 3 | 3.5 | 19 | 14.0 | 78 | 3/33 | 36 | 2 |
| 83 | | | | | | | 5.0 | 23 | 17.5 | 77 | 31 | 45 | 2 |
| 84 | | | | | | | | | 7.0 | 100 | 3 | 14 | 2 |
| 85 | | | | | 6.5 | 6 | 59.0 | 54 | 43.5 | 40 | 90 | 218 | 2 |
| 86 | | | 2.0 | 2 | 4.0 | 4 | 76.0 | 71 | 24.5 | 23 | 120 | 213 | 2 |
| 87 | | | | | | | 13.5 | 61 | 8.5 | 39 | 36 | 44 | 2 |
| 88 | | | 11.0 | 5 | 19.0 | 9 | 102.0 | 48 | 81.0 | 38 | 253 | 426 | 2 |
| 89 | | | 5.5 | 3 | 16.5 | 9 | 87.0 | 47 | 75.5 | 41 | 76 | 369 | 2 |
| 90 | | | 3.5 | 2 | 9.5 | 5 | 105.0 | 56 | 69.0 | 37 | 143 | 374 | 2 |
| 91 | | | 6.0 | 3 | 6.0 | 3 | 87.5 | 46 | 91.0 | 48 | 184 | 381 | 2 |
| 92 | | | 3.5 | 4 | 10.5 | 12 | 25.5 | 30 | 46.0 | 54 | 83 | 171 | 2 |
| 93 | | | 1.0 | 2 | 2.0 | 5 | 22.5 | 51 | 18.5 | 42 | 41 | 88 | 2 |
| 94 | | | 5.0 | 10 | 5.0 | 11 | 33.0 | 66 | 6.5 | 13 | 22/77 | 99 | 2 |
| 95 | | | 6.0 | 7 | 15.5 | 17 | 56.5 | 62 | 13.0 | 14 | 114/68 | 182 | 2 |
| 96 | | | 1.5 | 2 | 8.0 | 10 | 46.5 | 59 | 23.0 | 29 | 131 | 158 | 2 |
| 97 | | | 2.0 | 7 | 2.0 | 7 | 25.0 | 83 | 1.0 | 3 | 30 | 30 | 1 |
| 98 | | | 7.5 | 11 | 8.0 | 12 | 39.0 | 59 | 12.0 | 18 | 15/118 | 133 | 2 |
| 99 | | | | | | | 2.0 | 29 | 5.0 | 71 | 7 | 7 | 1 |

LENGTH - FREQUENCY

LOCATION: New Bedford Harbor

| STATION NO. | SEED < 1" |  | JUVENILE 1-2" |  | LITTLENECK 2-2 1/4" |  | CHERRYSTONE 2 1/4"-2 3/4" |  | CHOWDER > 2 3/4" |  | TOTALS |  | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught |  |
| 100 |  |  | 0.5 | 9 | 0.5 | 9 | 2.0 | 32 | 3.0 | 50 | 6/6 | 12 | 2 |
| 101 |  |  | 1.0 | 2 | 3.5 | 8 | 28.5 | 68 | 9.0 | 21 | 24/60 | 84 | 2 |
| 102 |  |  |  |  |  |  | 6.0 | 67 | 3.0 | 33 | 6/15 | 28 | 3 |
| 103 |  |  | 0.5 | 3 | 1.0 | 6 | 15.0 | 85 | 1.0 | 6 | 4/31 | 35 | 2 |
| 104 |  |  | 6.0 | 3 | 6.0 | 3 | 144.5 | 70 | 49.5 | 24 | 130 | 412 | 2 |
| 105 |  |  | 5.0 | 4 | 14.0 | 11 | 93.0 | 73 | 15.0 | 12 | 94 | 254 | 2 |
| 106 |  |  | 3.0 | 5 | 5.0 | 8 | 37.0 | 63 | 14.0 | 24 | 75 | 118 | 2 |
| 107 |  |  | 2.0 | 10 | 4.0 | 20 | 12.0 | 60 | 2.0 | 10 | 20 | 20 | 1 |
| 108 |  |  | 1.0 | 3 | 2.0 | 7 | 24.0 | 83 | 2.0 | 7 | 29 | 29 | 1 |
| 109 |  |  |  |  |  |  | 4.5 | 60 | 3.0 | 40 | 5 | 15 | 2 |
| 110 |  |  | 4.0 | 7 | 3.0 | 5 | 42.0 | 78 | 5.5 | 10 | 98 | 109 | 2 |
| 111 |  |  |  |  |  |  | 14.0 | 35 | 26.0 | 65 | 37 | 81 | 2 |
| 112 |  |  | 1.0 | 3 |  |  | 9.5 | 28 | 23.5 | 69 | 57/11 | 68 | 2 |

# LENGTH - FREQUENCY

LOCATION: Inner New Bedford Harbor

| STATION NO. | SEED < 1" |  | JUVENILE 1-2" |  | LITTLENECK 2-2 1/4" |  | CHERRYSTONE 2 1/4"-2 3/4" |  | CHOWDER > 2 3/4" |  | TOTALS |  | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught |  |
| 1 |  |  |  |  |  |  | 1.0 | 100 |  |  | 2/0 | 2 | 2 |
| 2 |  |  |  |  |  |  |  |  |  |  | 0/0 |  | 1 |
| 3 |  |  |  |  |  |  |  |  |  |  | 0/0 |  | 1 |
| 4 |  |  |  |  |  |  |  |  |  |  | 0/0 |  | 1 |
| 5 |  |  | 1.5 | 5 |  |  | 12.0 | 41 | 15.0 | 54 | 33/24 | 57 | 2 |
| 6 |  |  |  |  |  |  | 9.0 | 55 | 7.0 | 45 | 3*/28 | 32 | 2 |
| 7 |  |  |  |  | 1.0 | 4 | 13.5 | 46 | 14.5 | 50 | 26* | 29 | 1 |
| 8 |  |  |  | 6 |  | 3 |  | 30 |  | 61 | 98 | 151 | 2 |
| 9 |  |  | 3.5 | 4 |  |  | 19.5 | 22 | 65.5 | 74 | 100 | 177 | 2 |
| 10 | 1.0 | 1 | 32.0 | 29 | 11.0 | 10 | 36.0 | 33 | 29 | 27 | 109 | 109 | 1 |

* Portion of tow measured.

## LENGTH - FREQUENCY

LOCATION: Mt. Hope Bay

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"- 2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| F 1 | | | | | | | | | 18.5 | 100 | 16/21 | 37 | 2 |
| F 2 | | | | | | | | | 34.0 | 100 | 33/35 | 68 | 2 |
| F 3 | | | | | | | | | 45.0 | 100 | 28/62 | 90 | 2 |
| F 4A | | | 0.5 | 1 | 0.5 | 1 | 3.0 | 7 | 38.0 | 90 | 52/33 | 85 | 2 |
| F 4B | | | | | | | 1.5 | 4 | 34.5 | 96 | 32/39 | 71 | 2 |
| F 5 | | | 1.5 | 2 | 1.5 | 2 | 17.5 | 24 | 54.0 | 72 | 76/73 | 149 | 2 |
| F 6 | | | 0.5 | 2.5 | | | 0.5 | 2.5 | 19.0 | 95 | 15/25 | 40 | 2 |
| F 7 | | | | | | | | | 21.0 | 100 | 23/19 | 42 | 2 |
| F 8 | | | | | | | | | 14.0 | 100 | 14/14 | 28 | 2 |
| F 9 | | | | | | | 0.5 | 2 | 21.5 | 98 | 20/24 | 44 | 2 |
| F 10 | | | | | | | | | 34.0 | 100 | 22/46 | 68 | 2 |
| F 11 | | | | | | | | | 38.0 | 100 | 51/25 | 76 | 2 |
| F 12 | | | | | 1.0 | 5 | | | 18.0 | 95 | 17/21 | 38 | 2 |
| F 13 | | | | | | | | | 17.5 | 100 | 15/20 | 35 | 2 |
| F 14 | | | | | | | | | 24.0 | 100 | 20/24/28 | 72 | 3 |
| F 15 | | | | | | | 1.5 | 5 | 26.0 | 95 | 34/21 | 55 | 2 |
| F 16 | | | | | 0.5 | 3 | | | 17.5 | 97 | 22/14 | 36 | 2 |
| F 17 | | | | | | | | | 18.0 | 100 | 15/21 | 36 | 2 |
| F 18 | | | | | | | 0.5 | 3 | 17.0 | 97 | 22/13 | 35 | 2 |
| F 19 | | | | | | | 1.0 | 5 | 17.5 | 95 | 21/16 | 37 | 2 |
| F 20 | | | | | | | 2.5 | 6 | 37.0 | 94 | 62/17 | 79 | 2 |
| F 21 | | | | | | | 0.5 | 3 | 16.0 | 97 | 13/20 | 33 | 2 |

LENGTH - FREQUENCY

LOCATION: Mt. Hope Bay

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| F 22 | | | | | 0.5 | 2 | 3.0 | 14 | 18.0 | 84 | 19/24 | 43 | 2 |
| F 23 | | | | | | | 0.3 | 1 | 24.0 | 99 | 27/22/24 | 73 | 3 |
| F 24 | | | 0.5 | 2 | 0.5 | 2 | 6.5 | 23 | 20.5 | 73 | 42/14 | 56 | 2 |
| F 25 | | | | | | | 1.0 | 25 | 3.0 | 75 | 4/4 | 8 | 2 |
| F 26 | | | 2.0 | 12 | 2.5 | 15 | 5.5 | 32 | 7.0 | 41 | 10/24 | 34 | 2 |
| F 27 | | | 0.5 | 2 | 1.5 | 6 | 4.0 | 16 | 18.5 | 76 | 30/19 | 49 | 2 |
| F 28 | | | | | 1.0 | 8 | 3.0 | 21 | 10.0 | 71 | 14/14 | 28 | 2 |
| F 29 | | | | | 1.0 | 4 | 5.5 | 22 | 18.0 | 74 | 26/23 | 49 | 2 |
| F 30 | | | | | 0.5 | 2 | 3.5 | 16 | 17.5 | 82 | 25/18 | 43 | 2 |
| F 31 | | | | | | | 2.0 | 6 | 29 | 94 | 17/45 | 62 | 2 |
| F 32 | | | | | | | | | 14.5 | 100 | 15/14 | 29 | 2 |
| F 33 | | | 0.5 | 1 | 0.5 | 1 | 4.0 | 7 | 53.5 | 91 | 65/52 | 117 | 2 |
| F 34 | | | | | 0.5 | 2 | 6.5 | 29 | 15.5 | 69 | 22/23 | 45 | 2 |
| F 35 | | | | | | | 4.0 | 22 | 14.5 | 78 | 18/19 | 37 | 2 |
| F 36 | | | | | 1.0 | 5 | 3.5 | 19 | 14.0 | 76 | 21/16 | 37 | 2 |
| F 37 | | | | | 0.5 | 2 | 3.5 | 11 | 28.5 | 87 | 30/35 | 65 | 2 |
| F 38 | | | | | | | 2.0 | 9 | 19.3 | 91 | 20/26/18 | 64 | 3 |
| F 39 | | | | | | | 2.5 | 9 | 24.0 | 91 | 29/24 | 53 | 2 |
| F 40 | | | | | | | | | 11.5 | 100 | 11/12 | 23 | 2 |
| F 41 | | | 1.5 | 9 | 0.5 | 3 | 2.0 | 13 | 12.0 | 75 | 14/18 | 32 | 2 |
| F 42 | | | 1.0 | 5 | | | 2.5 | 11 | 18.5 | 84 | 27/17 | 44 | 2 |

LENGTH - FREQUENCY

LOCATION: Mt. Hope Bay

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| F 43 | | | | | 1.0 | 5 | 4.0 | 21 | 14.5 | 74 | 15/24 | 39 | 2 |
| F 44 | | | | | 0.5 | 4 | 1.0 | 7 | 12.5 | 89 | 16/12 | 28 | 2 |
| F 45 | | | | | 0.5 | 4 | | | 13.5 | 96 | 19/9 | 28 | 2 |
| F 46 | | | | | | | 0.5 | 4 | 13.5 | 96 | 17/11 | 28 | 2 |
| F 47 | | | 1.0 | 2 | 1.5 | 5 | 7.0 | 20 | 25.5 | 73 | 50/20 | 70 | 2 |
| F 48 | | | 1.0 | 17 | 2.0 | 33 | 3.0 | 50 | | | 6/- | 6 | 1 |
| F 49 | | | | | | | 11.0 | 14 | 34 | 86 | 45/34 | 79 | 2 |
| F 50 | | | | | 0.5 | 1 | 11.5 | 25 | 34 | 74 | 52/40 | 92 | 2 |
| F 51 | | | 0.5 | 1 | 1.0 | 2 | 12.5 | 27 | 32.5 | 70 | 53/40 | 93 | 2 |
| F 52 | | | | | 0.5 | 1 | 12.5 | 26 | 36 | 73 | 55/43 | 98 | 2 |
| F 53 | | | 0.5 | 1 | 3.0 | 4 | 17.0 | 22 | 55 | 73 | 93/58 | 151 | 2 |
| 54 | | | 0.5 | 1 | 1.0 | 1 | 12.5 | 20 | 50 | 78 | 45/83 | 128 | 2 |
| F 55 | | | 1.0 | 2 | 0.5 | 1 | 6.0 | 16 | 30.5 | 80 | 40/36 | 76 | 2 |
| F 56 | | | | | | | | | Mostly large | | | | 1 |
| F 57 | | | | | | | | | " " | | | | 1 |
| F 58 | | | | | | | | | " " | | | | 1 |
| F 59 | | | 4.0 | 9 | 1.0 | 2 | 4.0 | 9 | 37.0 | 80 | 59/33 | 92 | 2 |
| F 60 | | | 0.5 | 1 | 0.5 | 1 | | | 25.0 | 98 | 30/22 | 52 | 2 |
| F 61 | | | 0.5 | 1 | 1.0 | 2 | 3.0 | 7 | 68 | 90 | 23/54 | 77 | 2 |
| F 62 | | | 1.0 | 1 | 0.5 | 1 | 9.5 | 11 | 76.5 | 87 | 96/79 | 175 | 2 |
| F 63 | | | 1.0 | 1 | 1.0 | 1 | 9.5 | 10 | 79.5 | 88 | 67/115 | 182 | 2 |

LENGTH - FREQUENCY

LOCATION: Taunton River

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| TR 1 | | | | | 4.5 | 19 | 17.0 | 71 | 2.5 | 10 | 23/25 | 48 | 2 |
| TR 2 | | | | | 0.5 | 8 | 4.5 | 75 | 1.0 | 17 | 7/5 | 12 | 2 |
| TR 3 | | | 2.0 | 22 | 2.5 | 28 | 4.5 | 50 | | | 16/2 | 18 | 2 |
| TR 4 | | | 3.5 | 9 | 9.0 | 22 | 24.0 | 61 | 3.0 | 8 | 62/17 | 79 | 2 |
| TR 5 | | | | | 0.5 | 8 | 2.0 | 34 | 3.5 | 58 | 0/12 | 12 | 2 |
| TR 6 | | | 0.5 | 20 | | | 2.0 | 80 | | | 1/4 | 5 | 2 |
| TR 7 | | | | | | | | | | | 0/0 | 0 | 2 |
| TR 8 | | | 2.0 | 15 | 2.0 | 15 | 9.0 | 70 | | | 13 | 13 | 1 |
| TR 9 | | | 2.0 | 11 | 1.0 | 5 | 6.5 | 35 | 9.0 | 49 | 19/18 | 37 | 2 |
| TR 10 | | | | | | | | | 2.5 | 100 | 5/0 | 5 | 2 |
| TR 11 | | | 0.5 | 5 | | | 5.0 | 53 | 4.0 | 42 | 4/15 | 19 | 2 |
| TR 12 | | | 1.0 | 12 | 1.0 | 12 | 3.5 | 41 | 3.0 | 35 | 6/11 | 17 | 2 |
| TR 13 | | | | | | | | | 2.5 | 100 | 1/4 | 5 | 2 |
| TR 14 | | | 1.0 | 7 | 1.5 | 10 | 9.0 | 60 | 3.5 | 23 | 4/26 | 30 | 2 |
| TR 15 | | | | | | | 5.0 | 45 | 6.0 | 55 | 4/18 | 22 | 2 |
| TR 16 | | | | | | | 2.5 | 28 | 6.5 | 72 | 8/10 | 18 | 2 |
| TR 17 | | | 1.0 | 6 | 1.0 | 6 | 8.0 | 47 | 7.0 | 41 | 15/19 | 34 | 2 |
| TR 18 | | | | | 0.5 | 2 | 10.5 | 46 | 12.0 | 52 | 13/33 | 46 | 2 |
| TR 19 | | | | | | | 2.5 | 38 | 4.0 | 62 | 12/1 | 13 | 2 |
| TR 20 | | | 1.0 | 1 | 1.5 | 2 | 39.0 | 51 | 35.0 | 46 | 61/92 | 153 | 2 |

LENGTH - FREQUENCY

LOCATION: Taunton River

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| TR 21 | | | | | | | 2.0 | 29 | 5.0 | 71 | 5/9 | 14 | 2 |
| TR 22 | | | 1.5 | 1 | | | 55.0 | 41 | 78.0 | 58 | 83/61* | 269 | 2 |
| TR 23 | | | 0.5 | 8 | 0.5 | 8 | 2.0 | 34 | 3.0 | 50 | 4/8 | 12 | 2 |
| TR 24 | | | | | | | 6.0 | 35 | 11.0 | 65 | 16/18 | 34 | 2 |
| TR 25 | | | 1.0 | 5 | 2.0 | 9 | 5.0 | 23 | 14.0 | 63 | 13/31 | 44 | 2 |
| TR 26 | | | | | | | 2.5 | 23 | 8.5 | 77 | 12/10 | 22 | 2 |
| TR 27 | | | | | 2.0 | 3 | 23.5 | 32 | 47.0 | 65 | 38/107 | 145 | 2 |
| TR 28 | | | | | | | 9.5 | 30 | 22.5 | 70 | 24/40 | 64.0 | 2 |
| TR 29 | | | 0.5 | 1 | | | 7.5 | 21 | 28.0 | 78 | 44/28 | 72.0 | 2 |
| TR 30 | | | | | | | 0.5 | 5 | 10.5 | 95 | 10/12 | 22.0 | 2 |
| TR 31 | | | | | | | 1.5 | 15 | 8.5 | 85 | 12/8 | 20 | 2 |
| TR 32 | | | | | 0.5 | 2 | 5.0 | 17 | 24.0 | 81 | 11/48 | 59 | 2 |
| TR 33 | | | | | | | 5.0 | 32 | 10.5 | 68 | 13/18 | 31 | 2 |
| TR 34 | | | | | 0.5 | 1 | 10.0 | 30 | 24.0 | 69 | 14/55 | 69 | 2 |
| TR 35 | | | | | | | 1.0 | 11 | 8.0 | 89 | 6/12 | 18 | 2 |
| TR 36 | | | | | | | | | | | | 0 | 2 |
| TR 37 | 4.0 | 3 | 12.0 | 10 | 19.5 | 16 | 49.0 | 40 | 38.0 | 31 | 68 | 244 | 2 |
| TR 38 | | | | | | | 1.0 | 33 | 2.0 | 67 | 3 | 3 | 1 |
| TR 39 | | | | | | 9 | 9.0 | 32 | 16.5 | 59 | 7/49 | 56 | 2 |
| TR 40 | | | | | | | 1.5 | 27 | 4.0 | 73 | 5/6 | 11 | 2 |

LENGTH - FREQUENCY

LOCATION: Taunton River

| STATION NO. | SEED < 1" | | JUVENILE 1-2" | | LITTLENECK 2-2 1/4" | | CHERRYSTONE 2 1/4"-2 3/4" | | CHOWDER > 2 3/4" | | TOTALS | | NO. TOWS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Average No. per Tow | % | Quahogs measured | Quahogs caught | |
| TR 41 | | | 0.5 | 5 | 1.5 | 13 | 3.0 | 27 | 6.0 | 55 | 9/13 | 22 | 2 |
| TR 42 | | | | | 0.5 | 2 | 12.5 | 45 | 14.5 | 53 | 35/20 | 55 | 2 |
| TR 43 | | | 1.5 | 2 | 4.5 | 7 | 33.5 | 51 | 26.5 | 40 | 66/46 | 112 | 2 |
| TR 44 | | | 6.0 | 7 | 10.0 | 13 | 50.5 | 64 | 12.5 | 16 | 70 | 158 | 2 |
| TR 45 | | | 1.0 | 3 | 3.0 | 9 | 8.0 | 25 | 20.0 | 63 | 36/28 | 64 | 2 |
| TR 46 | | | 1.0 | 3 | 2.0 | 6 | 7.5 | 22 | 23 | 68 | 33/35 | 68 | 2 |
| TR 47 | | | 6.0 | 7 | 12.0 | 15 | 25.0 | 31 | 36.5 | 46 | 71 | 159 | 2 |
| TR 48 | | | 1.5 | 3 | 1.5 | 3 | 19.5 | 45 | 21.5 | 49 | 33 | 88 | 2 |
| TR 49 | | | 1.0 | 1 | 2.5 | 3 | 32.0 | 42 | 41.0 | 54 | 71/82 | 153 | 2 |
| TR 50 | | | 0.5 | 2 | | | 3.0 | 15 | 17.0 | 83 | 15/26 | 41 | 2 |
| TR 51 | | | 3.0 | 3 | 4.5 | 4 | 53.0 | 48 | 49.5 | 45 | 135 | 220 | 2 |
| TR 52 | | | | | | | 0.5 | 10 | 4.5 | 90 | 3/7 | 10 | 2 |
| TR 53 | | | | | 0.5 | 50 | | | 0.5 | 50 | 2/0 | 2 | 2 |
| TR 54 | | | | | | | | | 1.0 | 100 | 2/0 | 2 | 2 |
| TR 55 | | | | | | | | | | | 0 | 0 | 2 |
| TR 56 | | | | | | | 0.5 | 17 | 2.5 | 83 | 4/2 | 6 | 2 |
| TR 57 | | | | | | | | | 1.0 | 100 | 2/0 | 2 | 2 |
| TR 58 | | | | | | | | | 0.5 | 100 | 1/0 | 1 | 2 |
| TR 59 | | | 0.5 | 100 | | | | | | | 1/0 | 1 | 2 |
| TR 60 | | | | | | | | | 0.5 | 100 | 0/1 | 1 | 2 |
| TR 61 | | | | | | | | | 45.5 | 100 | 69/22 | 91 | 2 |
| TR 62 | | | | | | | | | 14.0 | 100 | 12/16 | 28 | 2 |

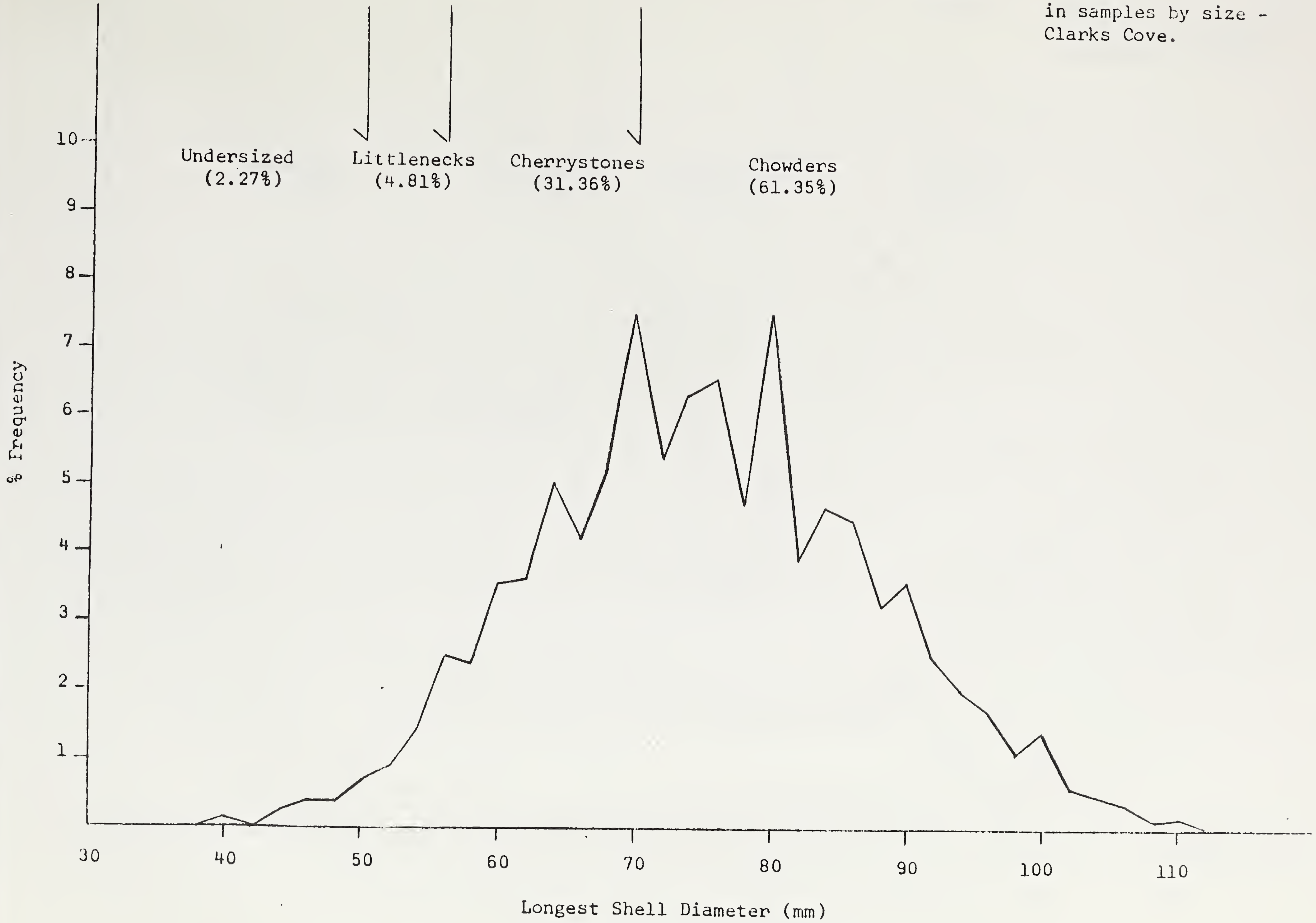


Figure 1 Percent of actual catch in samples by size - Clarks Cove.

Figure 2 Percent of actual catch in samples by size - New Bedford Harbor.

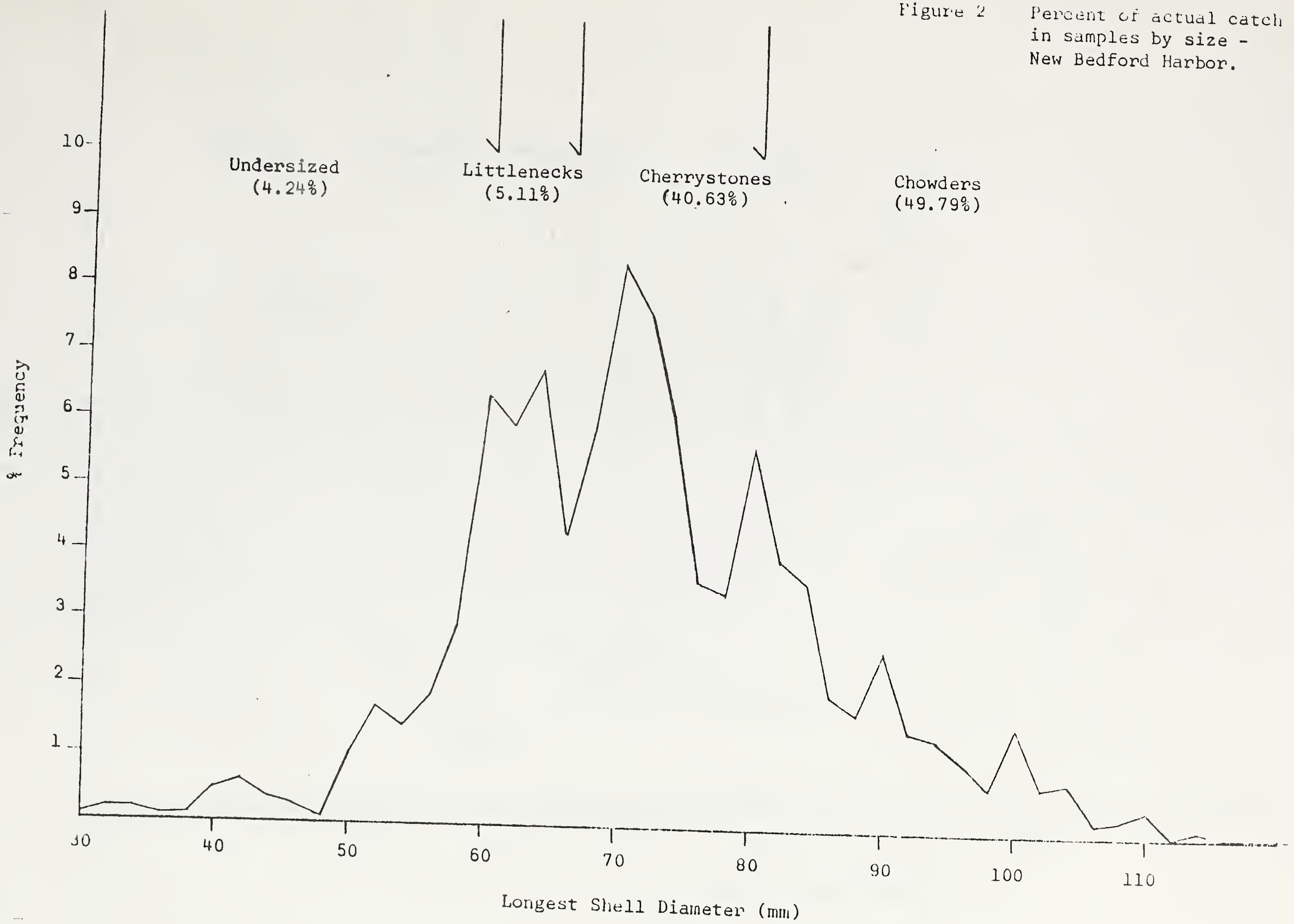


Figure 3 Percent of actual catch in samples by size - Mount Hope Bay.

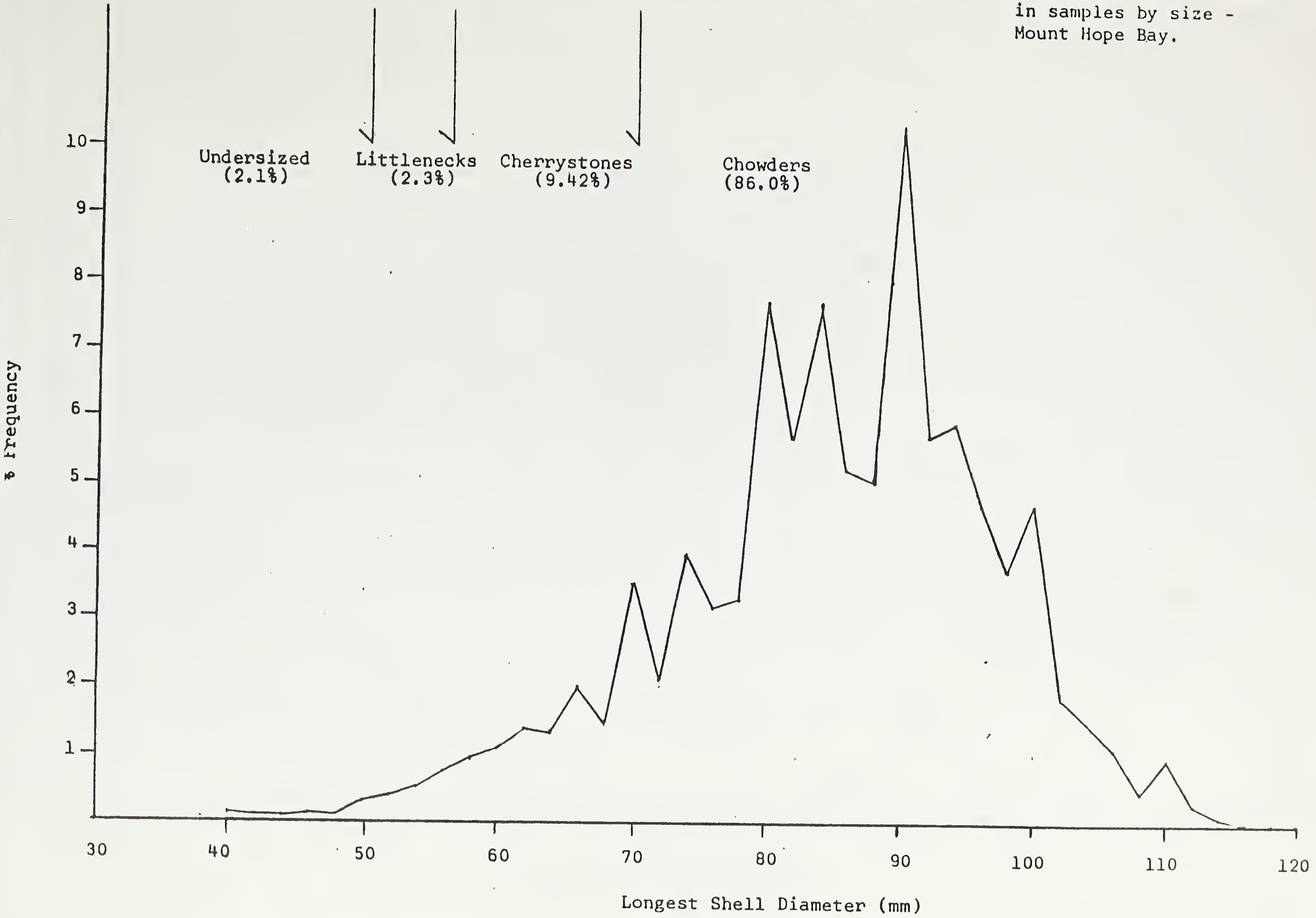


Figure 4 Percent of actual catch in samples by size - Taunton River.